

The Iron Age

A Review of the Hardware, Iron and Metal Trades.

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On Roasting Iron Ores.*

BY N. LILJENBERG.

The Austrian iron industry having to labor under unusual difficulties, its careful economy in smelting carbonates is well worthy of notice. Without entering upon a general review of this subject, I ask attention to the most common of their calcining kilns, constructed by M. Fillafer, manager at Fridau (Fig. 2, p. 3). It is composed of two ranges of rectangular chambers, *a a*, into which the ore is filled from the open tops. After charging, the doors at *b b* are shut, thus making the draft effective. The gas enters through the main flues *c c*, rises into *d d* and discharges through a number of small openings, built so as not to be filled with dust, and to clean themselves. The space across the chamber, between the gas jets, is no greater than necessary to effect the burning all through; as no crude center is left, it is not necessary to pick out any raw lumps afterward. Below the gas jets are grates, by which the descent of ore can be regulated.

pelled, a part of the latter is absorbed by the burnt lime, and remains there during the succeeding operation. The burnt calcareous ores cannot, of course, be washed, and have, on the contrary, to be sheltered from rain, a matter omitted in many places. The siliceous ores require a longer exposure to vigorous oxidizing, for transforming the protoxide of iron combined with the silica into peroxide, and the sulphide into sulphate, before the final application of bright red heat without danger of melting.

The great height of the Westman kiln is especially adapted for a careful preparation of the ore before exposure to the final heat. But the air for oxidizing contains a large amount of carbonic acid, sometimes carbonic oxide, and, besides, all the sulphurous gases. The heat rises chiefly along the walls, one part being absorbed by the brickwork, and the other part by the ore, which is thus roasted to a certain depth. In the interior, however, a mass of crude ore is left untouched by the gases, and, therefore, raw lumps occasionally come out with the roasted ores, to be picked out and roasted anew.

kiln in a state just suitable for a washing process. The same result ought to be obtained by conducting steam just below the flame, before the admission of pure air, as this, to a certain extent, replaces the operation of driving out the sulphuric acid. By single roasting, in a Taylor kiln, there will probably be little sulphur and much sulphuric acid in the product. The gas in this kiln is very early mixed with air, so as to render impossible the escape of unburnt carbonic oxide. By its running from the center, there is a better utilization of heat than in the Westman kiln, the absorption throughout the walls being less. The gas being generated in a special producer, there is sufficient pressure in the pipe for using the injector system. But in the case of waste gases from a blast furnace, especially where the top is open, as with most of the Swedish ones, there would probably be too low a pressure for using this system. In that case, it would also be necessary to close the top of the kiln, to prevent air being drawn in directly that way, and to increase the height of the chimney, thus assisting the

below the projections *c c*, in a similar way as in the Taylor kiln, thus doing away with the many small openings in the Fillafer furnace. In front of the hot region are three doors, similar to the Westman system, through which the ore can be worked. The middle part of the shaft is composed of double-brick walls, the inner part being as thin as can be made consistent with the resistance against pressure and wear of the ore. These walls are composed of rectangular perforated bricks, *f f*, giving admission of pure air to the ore, and, at the same time, making the combination of the thin walls sufficiently strong for resisting the pressure of the ore. The inner walls overhang on the short sides by resting on projections, or, in case it should prove necessary, on iron tanks with circulating water. The chambers communicate, through the branch flues *g g*, with the main flue *h*. In the upper part the gas is thrown out, through the openings *k k*, into the main flue. The openings are regulated by registers. The air to the outer chambers, surrounding the shafts, is admitted through the doors *b b*. It will now

horizontal rails, connected through the brick-work by eye-bars. The frames containing the door openings are kept in between the rails. Along the sides are two floors for working and regulating. The top openings are closed by covers sliding between the rails. The cars containing the ore are elevated on a pair of platforms, *p p*, hanging on a wire rope over a wheel, *q*. Under the platforms are water tanks, filled alternately from above by opening the valves of a water pipe, and emptied below when the bottom valves strike the bottoms of the discharge channels. The movement is regulated by a brake on the wheel. Unless local circumstances prevent it, it may, in most cases, be possible to use the same hoist for the blast furnaces and the calcining kiln described, by extending a bridge between them and placing the bottom of the blast furnaces so much lower.

Prof. Emerson Reynolds describes a process, for the protection of lead against corruptions which is done by coating it with a film of sulphide of lead. He recommends the fol-

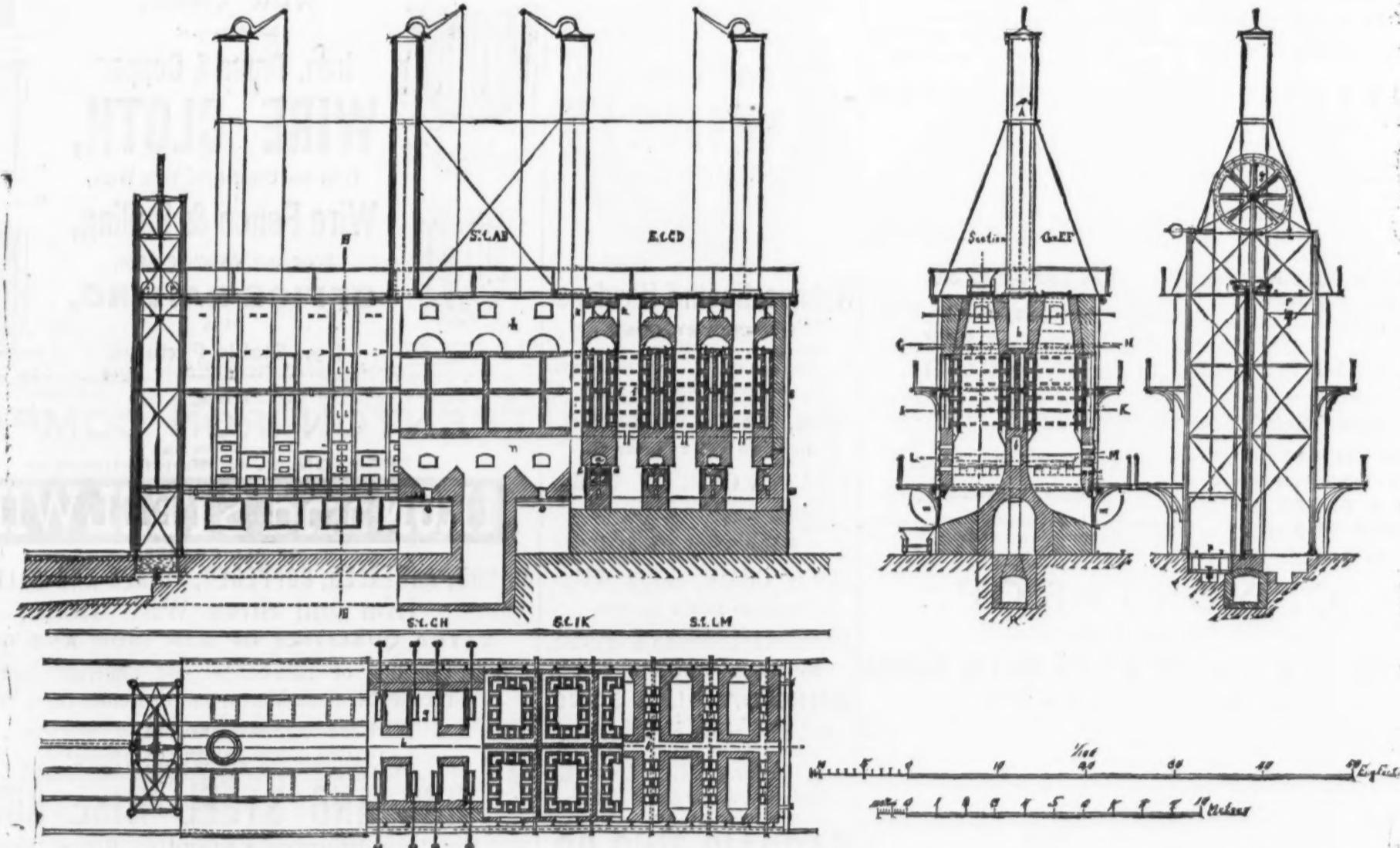


Fig. 1.

LILJENBERG'S CALCINING KILN FOR IRON ORE.

better than by discharging alone. In many places, however, these grates have proved troublesome, and are omitted. The air for combustion enters through the discharge doors. The capacity of roasting is about 11 cubic feet of space per ton of ore roasted in 24 hours. A new charge is not put in before the top is red hot. It ought to be remembered that these kilns are exclusively used for carbonates, and would not, in this shape, prove successful for desulphurizing. Fine ore cannot be roasted in this way, it being impossible to let the gases penetrate the dense mass, but for effecting this kind of roasting, M. Moser, in Austria, has invented a reverberatory furnace, with inclined bottom, on which the ore slides down, in a direction opposite the course of the flame.

Among the constructions of calcining kilns for desulphurizing, those of E. Westman, in Sweden, and W. J. Taylor, in America, ought to be specially noticed. The general features of the former, as used at nearly all of the Swedish blast furnaces, are well known. Calcareous ores ought to be treated differently from the siliceous ores; this is to a certain extent observed in Sweden. The former require, of course, as much more heat as that absorbed by the carbonic acid on leaving the limestone. The final heat may also in that case be higher, without danger of melting. As the carbonic is driven out in parts of the kiln above those in which the sulphuric acid is in ordinary cases ex-

The only satisfactory results in the Westman kiln can be obtained by roasting two or three times, care being taken that the ores once roasted are not mixed with crude ores, as it requires greater heat for driving out the last sulphuric acid from the basic sulphate.

In the Taylor kiln, the preheating chamber is very small, the ore being attacked by a vigorous flame near the top. The main part of the air for oxidizing is admitted below the flame, and without being mixed with any gases of combustion, acts upon the ore. According to the above remarks, half of the sulphur in the pyrites is driven out at a much lower heat than the sulphuric acid. The oxidizing region should therefore be placed between those two places, for transforming the sulphide into sulphate, and the protoxide into peroxide. This space is very short in the Taylor kiln, and is filled with gases of combustion to about the same extent as in the Westman kiln. It is therefore probable that, by this sudden exposure to high heat, the sulphide (FeS) melts, and then it naturally requires those large oxidizing chambers, with the pure air, for converting it into sulphate. At the lower end of the chambers there is, consequently, formed a great amount of the ferric sulphate. But then the operation ends. The bright red heat for driving out the last sulphuric acid is never applied. As the ore has not, after the oxidizing, been exposed to the heat for forming the basic sulphate, it is probable that the siliceous ores leave the Taylor

feeble pressure from below. The roasting process in the Taylor kiln is mainly regulated by the discharge from below, whereas the Westman kiln has several other means. The former has, however, the advantage of doing away with the crude center, roasting the ore all through.

Both systems suffer from the difficulty of equally distributing the ore through a small opening over a large surface. When a large amount and variety of ores must be roasted at the same time, the circular roasting kiln are too limited, comparatively expensive in construction, and embarrassing in changing ores. It will be clearly seen that those difficulties are less troublesome in the Fillafer furnaces, the plant of rectangular chambers allowing an unlimited extension and the simultaneous roasting of several different ores. But the construction used in Austria for carbonates is unsuitable for desulphurizing.

I have tried to work out the necessary changes for this purpose, and call attention to the roasting kiln represented by Fig. 1, which would, in my opinion, meet most of the requirements. The calcining kiln contains two sets of rectangular chambers. In the lower part of these the gas is introduced through the branches *a a*, extending from the main flue *b*. Air for combustion is taken in through the inclined openings *c c* from the channels *d d*, the admission being regulated by the outer doors. Thus the mixing of air and gas is effected before they touch the ore. The flame extends

be understood that the burnt gases are partly blown out the easier way through the overhanging chambers on the short sides, thus causing the flame to turn round. The thin walls are thereby heated and communicate part of their heat to the ore in a way similar to that adopted in some coking furnaces.

The air becomes heated by circulating around the walls and running through the perforated bricks. It is thrown in by action from the upper openings *k k*, because it is a shorter distance, and the mechanical resistance from the ore considerably less than the flame passing all the way from below. By merely moving the valves for the openings at *g* and *k*, it will thus be possible to throw off more or less of the impure gases from the ore, and to give admission of pure hot air. The first half part of the sulphur is thus volatilized in the upper region and eliminated. The second part is oxidized within the thin walls, and, finally, the sulphuric acid driven out by the direct flame. It is easy to introduce steam through the doors in case of need, thus mixing water with the pure air admitted on the ore. The ore is discharged below through the hanging doors *m m*.

The gas enters through the main flue *n n*, and is distributed on both sides. The bottom of this flue is arranged so that the dust can accumulate and can be drawn out through the doors *o o*. On the chimney flue are erected four stacks, made of iron plate, lined with red brick. The binders are made of vertical rails kept in by three lines of hor-

izontal rails, connected through the brick-work by eye-bars. The frames containing the door openings are kept in between the rails. Along the sides are two floors for working and regulating. The top openings are closed by covers sliding between the rails. The cars containing the ore are elevated on a pair of platforms, *p p*, hanging on a wire rope over a wheel, *q*. Under the platforms are water tanks, filled alternately from above by opening the valves of a water pipe, and emptied below when the bottom valves strike the bottoms of the discharge channels. The movement is regulated by a brake on the wheel. Unless local circumstances prevent it, it may, in most cases, be possible to use the same hoist for the blast furnaces and the calcining kiln described, by extending a bridge between them and placing the bottom of the blast furnaces so much lower.

The Railway Review has a paper by S. W. Robinson, C. E., Professor of Mechanical Engineering in the Ohio State University, on a new rail, which he describes as the Improved Concave Railway Rail. This is somewhat similar to the old *U* rail; but the con-

* From the Journal of the United States Association of Charcoal Iron Workers.

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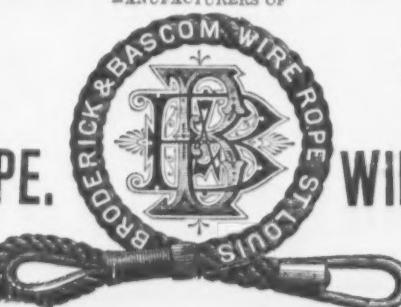
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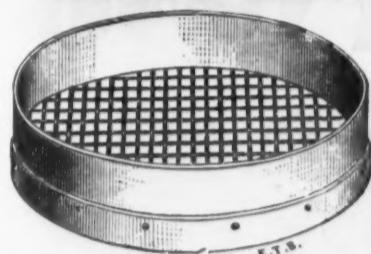
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cave space is filled with wood, and the head (which is much thicker than that of the U rail) is said to be more than usually compressed and solidified. The rail is fixed by dog spikes, while the end fastenings are made by an iron plate fitted inside the rail, requiring no fish bolts or nuts. It is stated that this rail has already been tested on the Chicago and Western Michigan Railway with excellent results, although the ordinary 56-pound steel rails were replaced by 45-pound iron concave rails.

The Manufacture of Russia Sheet Iron.

BY H. B. FROOM.

So many different versions were current as to the process adopted for producing the sheet iron known as Siberian, polished and unpolished, I determined when in the Urals to remain, if possible, at some one or more of the works, and watch the production from the ore to the finished sheets. The manager, Ivan Ivanovitch Wohlstedt, of the celebrated Demidov works, obligingly offered me every facility, and in the report which follows the method followed there is explained; where from observation in other works, any difference of procedure of a serious nature was noted, I mark it, but the general conclusion I came to is that the manufacture of sheet iron is carried on with great care, great labor and expense, and that having good ore to commence with, the result is not difficult to obtain.

From the commencement to the end of the manufacture of the sheets I saw completed,

are at once cut into pieces 29½ and 30½ inches long, each piece representing a future sheet, and being of various thicknesses for sheets of diverse weights.

Sheet iron in Russia is invariably made 4 feet 5 inches by 2 feet 4 inches (2 arshins long, 1 arshin wide), and called 7 pound, 8 pound, 12 pound or 15 pound, being made of all weights from 6 pounds to 20 pounds per sheet. Hence the thickness of the puddled bars is not much considered. The puddle bars when broken show a fine granular fracture, somewhat steely, little, if any, fiber being found in the bars. About 60 of these pieces are taken—29½ inches for ordinary sheets and 30½ inches for polished or "glanced" sheets—and put into an ordinary furnace heated with wood from below, the bars being placed on ridges in the upper chamber, the flame impinging through three openings on either side. The rolling down of these bars into sheets is a matter of three processes. First, each slab is rolled out into a plate as near as possible—workmen being guided by the eye—2 feet 6 inches by 2 feet 8 inches. Six men are engaged in this process. One man screws down the rolls to a fixed standard of thickness. There are two rollers; one man draws the slabs and the other carries to the rolls. While these are rolling the slabs down, a sorter selects them in lots of three, putting a smaller one between two larger ones, and they are thus in lots of three returned to the furnace. Secondly, these "threes," not tied together in any way, but simply assorted, again at a fair heat, are drawn out and brought to the rolls, held open by the roller, and a boy throws between the plates prepared powdered charcoal; the bundles are then passed

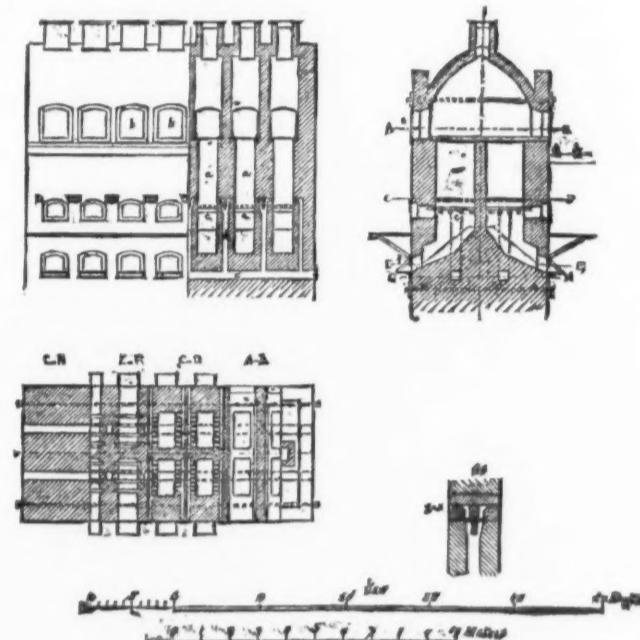


Fig. 2.

THE FILLAER CALCINING KILN.

I did not lose sight of the same, except they were under care; so that, as the manager said, there might be no uncertainty or quibble. The ore from which the metal is made is obtained close to the blast furnaces of the celebrated Tagil works, from which the C C N D bars are produced. This ore is very rich, and under arrangements is also used in other works, such as Takovleff, &c., the family of the original owner, Mr. Demidoff, of that district, having by marriage and sales given over right to others to mine there. The ore scarcely contains a trace of phosphorus, and not any trace of sulphur. The analysis is as follows:

Si O ₂	7.87	Mn O ₂	0.57
Al ₂ O ₃	3.57	Ca O	0.97
Fe ₂ O ₃	80.047	S	—
Mn	—	Ph	—

The flux used is ordinary limestone, found on the spot. Before being placed in the furnace the ore is roasted in heaps, of from 10,000 to 15,000 tons, with charcoal made from white pine. If the iron is for sheets, the workmen will not use charcoal made from birch wood. The roasting is done close at hand, quite in the open, and at any time of the year, the intense frost or heat not making any difference. In some works they prefer to roast the ore in the winter, and say red pine charcoal is not worse than white pine. The workmen assert that if charcoal made from birch wood is used, particularly in the blast furnace, then white specks are seen on the sheets. The managers say this is prejudice. The blast furnaces are oval. The size adopted as a standard has a capacity of 9000 cubic feet; the oval is 20 feet by 10 feet, being 52 feet high. The bottom is 3 feet diameter, and at 9 feet from bottom is full size of the oval. The system is Raschette's, with six tuyeres on each side, using hot blast at 200° Celsius. The furnace is charged every half hour with a thin layer of roasted ore and charcoal ore, broken up small and mixed with the flux; pieces of ore larger than a good-sized walnut are not passed. The blast for these three furnaces is provided by three horizontal engines, each having 20-inch steam cylinder and 5-foot stroke. The production is from 1500 to 2000 pounds per day, 25 to 30 tons. New charcoal produces more than old, but the production varies little. The pig iron produced is at once puddled in an ordinary puddling furnace. The workmen attach importance to its being at once puddled, and make it into blooms of 100 to 200 pounds weight. The puddling may be done with gas; it seems not to matter. Great care is taken to hammer the blooms well, to get rid of all impurities, under either a steam hammer or tilt hammer. Many workmen contend that the steam hammer is not so good as the tilt, but it seems simply prejudice. The blooms are at once reduced in a regular way into bars 5 inches wide, but of various thicknesses. After the bar has got rather cool the workmen stop rolling. These bars

through the rolls, the rolls being screwed down to the same point as before, the thickness of the three being reduced to the same as each was previously. Now the sorters again divide the sheets into lots by thickness, and makes bundles—not tied bundles—of three of the thicker, four of the medium and five of the thinner, and returns them to the same furnace. Thirdly, when the bundle is again at a good heat—red cherry—these lots of plates are brought to the rolls, opened out, and charcoal again powdered all over them, and the lots are passed through the rolls until the thickness of the lot is brought to the standard of the original one slab. The sheets are now all sheared to one length—5 feet; in the width they are not touched. The sheets are now ready for the finishing process. Before proceeding to this, let me describe the preparation of the charcoal, a matter to which the workmen attach much importance, but which the managers do not seem to consider of any moment.

The workmen object to birch wood charcoal, and prefer yellow pine and large-sized charcoal. It is first carefully washed to get out all earthy matter, ground in a mortar mill, or pounded under a hammer, washed again and dried, again pounded and sifted through a fine sieve. The workmen attach the greatest importance to using charcoal; but I saw sheets prepared without, which seemed quite as good, but the workmen contend that the sheets without charcoal soon lose the "bloom," or fresh look, especially with unpolished sheets. The sheets from the third process are stacked to cool completely—the lots I had in hand were allowed to stand in a rack from evening to morning—and are then sorted, as near as possible by the eye, into sheets of equal weight; seventy or eighty being considered a "pair" or lot for the future processes. Each sheet, being examined and brushed, is then dipped into a tank of water—the tank is never cleaned out, but kept full—"older the water the better"—and kept at about blood heat. Taken out of the bath, each plate is powdered all over with the prepared charcoal, dusted from or through a coarse linen bag. If the powdering is not done "equally" the color of the sheets will not be equal. The sheets thus prepared, on the top and bottom of the bundle are placed two or three old plates to protect the sheets. The bundles of sheets being placed in the furnace, are very gradually heated, the workmen considering that the more smoke there is in the heating of the bundles the better the sheets will be; but to get the bundles to a bright red heat, not less than seven or eight hours should be employed. The bundles I had in hand were dipped, powdered and prepared by 3 o'clock, and were in the furnace till 10:30—the same furnace as before described, but that on and around the bundle, wood was placed to prevent direct action of the flames and produce smoke. When the packet was removed from the furnace, at

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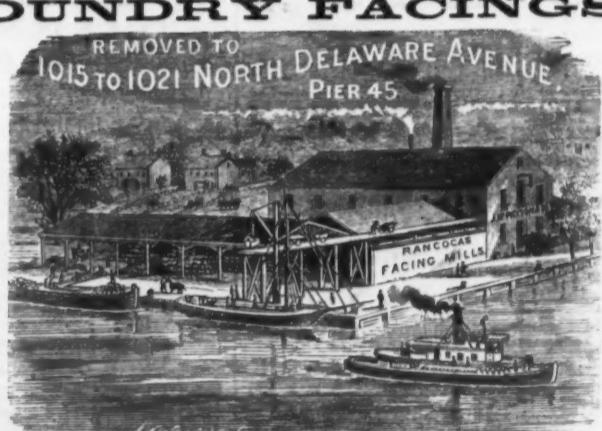
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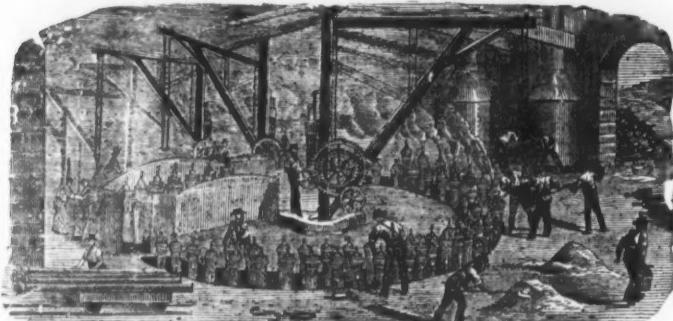
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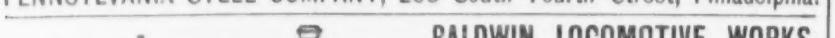
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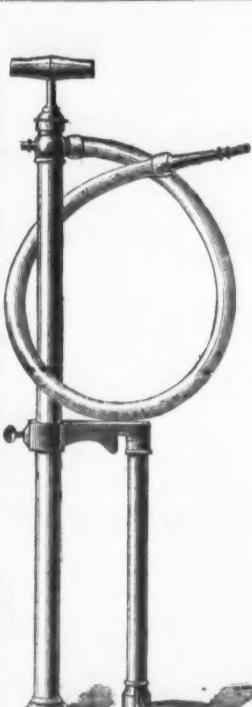
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Manganese Oxide	.09		Phosphorus	.16
Alumina	4.43			
Lime	1.5			
Magnesia	.97			
Silica	14.89			
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placed about 2 feet from the ceiling on hanging brackets from the beams, and 1 1/4 inch pipe is the best adapted for the purpose. In addition to the safety from fire, there is the economy of space and every inch of floor space is available. The system is one that should commend itself to those who are engaged in the manufacture of inflammable articles.

Suggestions for Fire Protection in Foundries.

The frequent destruction of stove foundries by fire gives interest and value to anything in the way of practical suggestions bearing upon the subject of fire protection in manufactures. We have no data relating especially to foundries and their associated buildings, but from a pamphlet issued by the Boston Manufacturers' Mutual Fire Insurance Co. we gather many valuable suggestions, which cannot fail to have interest for the proprietors of stove foundries. The work of the Boston company relates chiefly to cotton and woolen mills, but much that it has learned from observation and experience applies equally to foundries, pattern shops and storehouses. After giving a long and analytical list of the fires in manufactures causing losses of over \$1000, the company proceed to offer the following preliminary suggestions:

First and foremost are mentioned the three factors of safety; these are—good construction, adequate apparatus and discipline among workmen. The absence of any one of these factors often entails heavy losses, as is shown by the tabulated reports of the company. In regard to construction they say: "It will be observed that our distrust of concealed spaces behind woodwork, in which fire can spread and be protected from water, has been forced upon us at a high cost, several of the fires mentioned in the list having become unmanageable from that cause." This method is described as the art of "combustible construction," and is commonly adopted by owners, builders and architects. It is really an inside timber building, attached by combustible braces or furring to an outside screen of stone, brick or iron. Usually such buildings are described as built of the latter materials. Instances are pointed out where risks were refused, because these suggestions had not been complied with, and serious losses had afterward been traceable to these very causes. In one case the alterations had been deferred until another year and the mill was destroyed in the interval. Wooden shutters covered with tin are highly recommended.

The one-story construction is urged as most economical, both in the time needed for erecting and the ease with which it is heated and lighted. The old-fashioned barn roofs to be found on many of our foundries are condemned. A better construction would be to place a flat roof on the walls. In regard to the use of steam they say: "In connection with this subject it may not be amiss to call the attention of members to the success that has attended the distribution of steam over long distances for power as well as for heating; the lines of pipe now laid in Lockport, Auburn, Springfield and Detroit are in each case three to five miles in length, and power is carried two miles from the boilers without material loss of pressure."

"The right place for boilers would, therefore, be alongside the railroad, or on the coal wharf, where the coal is first discharged. It may also be suggested that the distribution of steam for heating and cooking in factory tenements is a subject worth consideration, especially where mills have extra boilers to operate engines in hot, dry seasons, when water power is insufficient, but which are not used in winter. We might also call attention, if desired to do so, to cases where steam enough is now being wasted to heat all the houses and do all the cooking for the whole establishment."

"There are also many places where a great saving could be made if the primary work on the stock or the weaving could be done at some distance from the carding and spinning mills, provided the moving of the stock could be compassed cheaply and safely."

In regard to the transportation of stock we find the following paragraphs, which apply even more forcibly to the foundry and stove shop than to the mills:

"This point has been covered most fully by the Plymouth Cordage Co., by the adoption of a small locomotive engine, worked by compressed air. This engine (which was built by the Baldwin Locomotive Works) runs on a very narrow track, alongside of which is an air-pipe connected with the compressor in the main engine room. The engine and car run through the rope walk and the basements of the various buildings."

"Stock is loaded easily and conveniently, and a boy can manage the apparatus. The engine can be changed by coupling to the air-pipe at almost any point, and the power required to change it is of little moment. It does work that previously required four horse-trucks, three men to each."

"There are many cases where the narrow spaces on the canal front preclude the construction of any but high buildings; others where both space and water-power are exhausted, but where there is plenty of available land at no great distance, sometimes on a level with the lower and sometimes with the upper floor of the factory. As the air engine carries no sparks, it can be run with perfect safety on an elevated tramway into the porch, where stock can be loaded from the mill elevator on either floor. It may be possible to gain an advantage in the location of a weaving building, or of a stock-house or sorting building, by its use."

We have seen air engines of this class and also small steam locomotives which could be made of the greatest use in handling heavy stock of all kinds. A boy is capable of running them, and if several are in use, one engineer may be employed to look after the repairs. The speed and convenience of these engines is much greater than that of a team of horses when there is much work to do of the kind usually met in foundries.

The prevailing styles of building are made the subject of severe criticism, and points are very justly made against the systems commonly adopted:

"It may be, perhaps, deemed presumptuous

to frame an indictment against customary methods of building that are almost universal, but it must be remembered that it is not many years since the profession of architect had any existence in this country; and while in those few years great progress may have been made in the fine art of architecture, it is also unfortunately true that, as the fine art may progress, the useful art of building has been neglected, in consequence of which neglect the heaviest single tax now imposed upon this nation is the fire tax."

"The owners of property adopt unsafe methods of building, without much consideration, because they are apparently cheapest, and rely upon policies of insurance in companies that have been licensed by the State, and are assumed to be solvent, because they meet an arbitrary rule of little value as a test either of management or solvency. Architects are almost precluded even from suggesting better methods of construction, and the art of building is becoming a lost art."

The advice upon construction is particularly valuable and worth the most careful attention. To those who read between the lines this will be found a most startling chapter:

"In respect to the construction of factories and factory storehouses, the advice commonly given is to consider the customary methods adopted by architects and builders, with a few conspicuous exceptions, as the examples of all the faults that are to be most carefully avoided. Before stating our own rules, we may be better understood if we give a statement of common methods of construction that we advise against, and that either require alteration or expensive methods of protection, if already adopted, preliminary to admission."

"This customary method appears to be to construct a very combustible timber structure inside of an incombustible shell, which shell is very far from being indestructible by fire. This timber structure is usually attached to the supporting walls by wooden braces; it is composed of thin material with the greatest number of corners, and having the largest possible areas of sawed surfaces most ready to be ignited; the various divisions of the space between the inside timber structure and the outer walls and in the partitions are usually connected by open ways or flues of wood, in which fire can circulate freely and be at the same time adequately protected from water."

"This method of construction has sufficed to assure the maximum of loss from the smallest beginning of fire; but in order, apparently, to make the destruction more certain and complete, if a fire ignites in any part of the building from any small cause, the shavings and other rubbish which accumulate during construction, are in a large degree deposited in these flues and between the floors and ceilings."

"The art of combustible construction has adequately accomplished its apparent object. During the five years ending Jan. 1, 1879, the losses by fire in the United States and Canada have aggregated \$412,759,735. The cost of sustaining insurance companies for this period has been at least \$4,000,000 per annum. The cost of fire departments, not less than \$25,000,000 per annum. Total \$412,759,735 Average per year \$83,150,000"

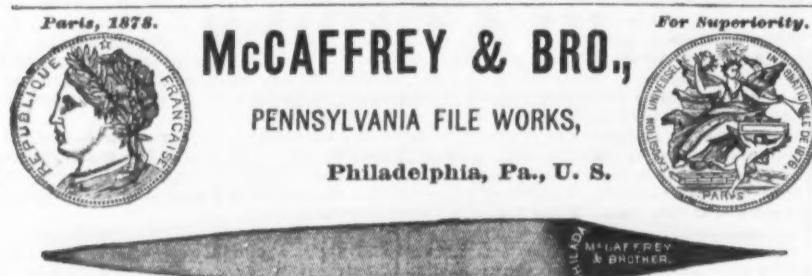
"In this period, and constituting a part of the loss, the following structures have been wholly or partially burned:

Hotels	408
Churches	418
Schools	38
Railroad stations	102
Court and custom houses and town halls	102
Hospitals, asylums and almshouses	68
Total	3255
Almost two a day, Sundays included, for a period of five years."	

These losses, large as they seem, are far within the facts, since they cannot be called official statements, many fires not being reported. Those best informed think that they are at least 20 per cent. too small.

Specifically, the constructions to be avoided are:

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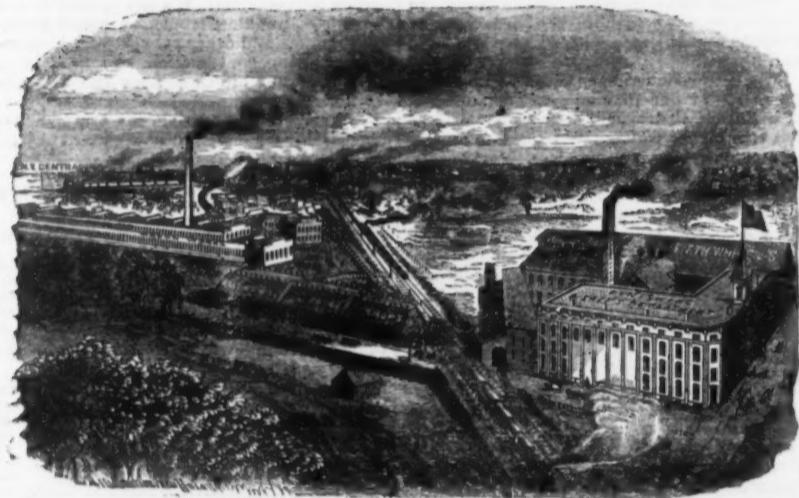
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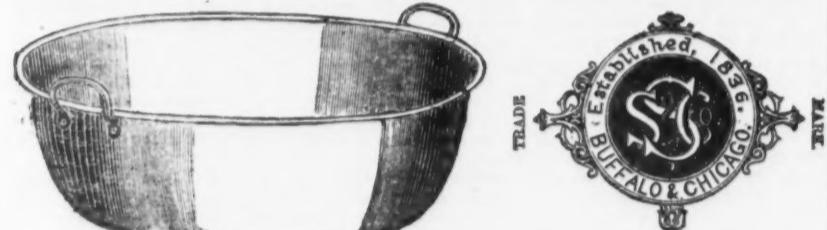
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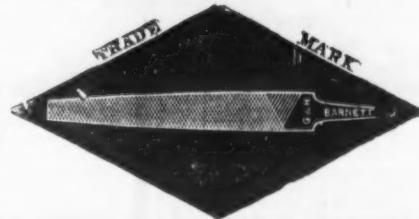
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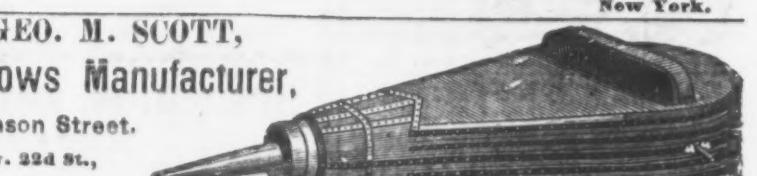
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This Bucket is struck out from the best charcoal iron; consequently is very durable. It requires 50 per cent less power to run it than the old-fashioned square bucket, and will outwear half a dozen of them. Over 200,000 are now in use by the leading Fire Department Manufacturers at home and abroad. It is the best Bucket made.

CAUTION.—The popularity of the DUG'S BUCKET has caused many manufacturers of the old style of Elevator Bucket to closely imitate its spherical shape. We warn all parties against patronizing infringers of our patents, as they will be held accountable. Send for circular. Address

T. F. ROWLAND, Sole Manufacturer, Continental Works, BROOKLYN, N. Y.

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Manufacturers of NORWAY IRON RIVETS of Superior quality.

We carry a large stock of the various sizes of Tinnings', Carriage, Wagon, Hame, Belt, Barrel, Safe and Tank Rivets, and make promptly to order all sizes not larger than 7-1/2 inch diameter. We have a capacity of two tons of the various sizes of small Rivets per day of ten hours. Freight allowed to all points on or east of the Mississippi River. Correspondence with buyers solicited.

WILLIAM H. DUNBAR, President.

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We carry the most complete stock in the city with our New York agents, The American Tack Co., 116 Chambers St.

John Chatillon & Sons, THE ANSONIA CORRUGATED STOVE PLATFORM.

With Patented O. G. Border.

ROUND ZINC.

27, 30, 32, 34, 36 inch.

Manufactured of heavy metal, requiring no nailing or lining, the edge retaining its form. Superior pattern, finish and quality. Price as low as any.

Send for List and Discount.

Packed 12 in each case.

PURE ELECTRIC WIRE,

Manufactured by the

ANSONIA BRASS AND COPPER COMPANY,

For Magnets, Telegraphs, Telephones, &c.

Insulated on the bare wire with H. Spiltdorf's patented Liquid Insulation, covered with cotton or silk.

All sizes of Bare and Covered Wire in Stock.

The conductivity of every bundle tested and warranted.

THE ANSONIA WROUGHT GONGS,

For Clocks, Indicators, Telephones, Call Bells, Bell Punches, Steamboat and Railroad Use. Burnished or Nickel Plated.

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ESSEX HORSE NAILS.

Hot Forged, Warranted Best Quality, Pointed and Polished.

HOWE & CO., Troy, N. Y. Sole Agents.

openings from floor to floor shall be adequately cut off by properly constructed hatches, doors and other appliances, mostly automatic in their working.

5. That openings in party walls, exposed windows, &c., shall be protected by adequate wooden doors or shutters covered with tin automatic appliances preferred.

6. That all rooms in which special dangers exist shall be plastered on wire lathing close to the surface of the ceiling and following the line of the timbers; and that all iron or stone posts on which the safety of the building greatly depends, shall be carefully protected from fire, either with wood and tin or wire-lath and plastering.

The plan submitted herewith gives the simplest construction.

The company prepares sketches of buildings for its members, when requested to do so, in such form that the details can be readily worked out by any good builder, and is now prepared to make plans, charging therefor the time spent by our engineers and draftsmen and the cost of the materials used."

We desire in all possible cases to secure two sources of water supply, and customarily require two or more fire pumps, one pump and reservoir of sufficient elevation, and a connecting pipe to give an efficient supply of water.

An adequate pipe service, with hydrants in yards, porches or in the rooms and upon the roofs.

When possible, the water should stand at the hydrants, both in the yard and there allowed to settle, and a proportion of the lime deposits at the bottom of the tank. The lime water is conveyed by pipes to the pan of the edge-runners in which the flint has been deposited, enough lime water being introduced to moisten the flint sufficiently for a thorough mixing. The revolving runners grind and thoroughly mix the mass, taking about a quarter of an hour for each charge of one ton of flint and lime water.

Sprinklers in all parts of a building where there is special liability to fire, and generally in all stories above the second, however occupied, especially in the upper story; the Parmelee automatic system preferred. A fire alarm is generally applied to the automatic system.

Small hose attached at numerous points to the water pipes in the rooms.

A very full supply of buckets reserved for fire purposes only, and always kept full of water.

A trained private fire department is required, to be drilled in the use of all the apparatus. Watchmen especially need to be thoroughly trained in the use of the fire apparatus."

In concluding the remarks upon this subject, the following passage occurs: "True insurance does not consist in betting that bad methods of construction and inadequate means of preventing the extension of fire will not result in loss." The true method is to proceed under the rule that no heavy loss ought to occur to the insured, and to take such means in regard to construction as will make losses impossible, or at least highly improbable.

Resources and Trade of Hayti.

J. M. Langston, the United States Minister Resident and Consul General to the Republic of Hayti, recently arrived in this city on a vacation. Mr. Langston has held several positions under the government, and has been Minister to Hayti for about four years.

In a conversation with a reporter, he gave a number of interesting facts respecting the state of trade. The public revenue is derived from exports and imports. The revenue is about \$5,000,000 annually. The currency of the country is American silver. A national bank with a capital of \$2,000,000 has lately been organized. This is preliminary to establishing a national currency. There is a public debt of \$11,500,000, and there is a strong feeling in favor of the honest payment of this debt.

The exports are coffee, logwood, cotton, coco, honey and fruits. The exports and imports are rapidly increasing. The country is wonderfully rich and has a great variety of soil and climate, owing to the mountains. There is never any frost, however. Fruits of all kinds grow there in abundance—oranges, lemons, pineapples, mangoes and many others. The people are industrious. The trade is nearly all with the United States, and it offers a very inviting field. It is mostly in the hands of the English. They bring coffee from Hayti to New York, and ship it to Europe. They, of course, favor English manufacturers. For instance, there is a great demand in Hayti for American denims. The people have come to know that American goods are better, yet half of the time they can't get them. English goods are forced upon them.

"I don't understand," continued Mr. Langston, "why it is that while all the trade of the country is with the United States, and while American silver is the currency of the country, yet this trade is all in the hands of the English. Here is the Atlas Line of steamers, which never goes nearer England than New York, yet it is a British line. It started with one little steamer, the Claribel, and the trade has increased so that it now runs 15 steamers, running between New York and Hayti and other West India ports every 10 days. There is another English line, the Royal Mail Line, also running there and doing a good business. Yet during the four years I have been in Hayti, I have had to record the arrival of only one American steamer, and that was a small affair carrying a circus. One single Atlas steamer recently took a load from Hayti, the freight on which amounted to \$18,000. All of the flour comes from the United States. There is a growing demand for dry goods and other like articles, and I think it is time our people began to appreciate these facts. Hayti has recently been admitted to the Postal Union, and it is advancing rapidly. It offers a good field for American enterprise. There are many well-educated people there and good society, but of course they are negroes."

The *Révue Industrielle* illustrates and describes the steam ferry boats constructed by Stapfer, De Duclos et Cie, of Marseilles, for use in that port. These boats consist of two flat-bottomed iron hulls 33 feet long, 40 inches wide and 5 feet high. These are placed about 7 feet 6 inches apart, and upon them is laid the deck. In the middle are the engine and boiler, driving a screw, which is placed midway between the two hulls. On either side of the engine is passenger accommodation, the compartments being arranged somewhat on the same plan as a tram car. Forty passengers can be carried, and the total weight, when they are on board, will be about 19 tons. The engine, which develops a power of from 16 to 18 horses, has a 9-inch cylinder, with a 6-inch stroke. The speed does not exceed 4 knots, but for the short distance which they travel it is considered sufficient.

Silver Coinage and Circulation.—According to a statement obtained at the Treasury Department, the total coinage of silver dollars since the passage of the silver bill and up to date, in round numbers, is 96,000,000. Of this amount, 76,000,000 are utilized in the money circulation of the

country—57,500,000 in the form of silver certificates, and 18,500,000 in silver dollars. The total coinage of silver dollars will reach 100,000,000 about the 20th of October.

Flint Fire Bricks.

A new manufacture has recently sprung up in our midst, says the London *News*, and one which promises well for those who have embarked in it. This is the manufacture of fire-bricks from flints, at works which have lately been started at Charlton, Kent, by the Thames Flint Fire-brick Company, of which Mr. E. R. Salwey is the manager. These works are favorably situated as regards transport, having a river frontage and railway communication, but still more favorably as regards the raw material, which abounds in the neighborhood. The bricks are manufactured under Mr. Henry Edwards' patent, the process of manufacture being as follows: The flint stones are first thoroughly calcined in special furnaces constructed for the purpose. The calcined flint is then transferred to a fixed pan in which revolves a pair of heavy edge-runners. The limestone is also burned in a kiln in the usual manner and deposited in a tank, into which water is introduced, and the burnt lime is there partially dissolved. The water in which the lime has been partially dissolved is run into another tank and there allowed to settle, and a proportion of the lime deposits at the bottom of the tank. The lime water is conveyed by pipes to the pan of the edge-runners in which the flint has been deposited, enough lime water being introduced to moisten the flint sufficiently for a thorough mixing. The revolving runners grind and thoroughly mix the mass, taking about a quarter of an hour for each charge of one ton of flint and lime water.

When the mass has been ground and mixed sufficiently for the purpose for which it is intended, it is removed from the pan through a sluice in the bottom. The plastic composition thus formed may at once be molded into brick, but it is improved and brought to a better temper by being kept for a few hours before molding, which plan is usually adopted. The molding, drying and baking processes are effected in the manner usual in the manufacture of the Dinas fire-brick or stone fire-bricks generally. The fire cement is brought into fit condition for sale by drying the plastic compound after it leaves the pan and regrinding it when dry. It is then ready to be packed in bags or casks for the market. By this method of manufacture, fine goods are produced which consist of nearly pure silica, and which are stated to be quite as capable of resisting intense heat as the Dinas fire-bricks, if not more so. These bricks have been tried in various steel and iron works in furnaces developing intense heat, including the Siemens regenerative furnaces, and the results in all cases are reported to be most satisfactory. This manufacture is interesting and important, as showing how a material which exists in great abundance in the locality, and hitherto of little value in the industrial arts, may be turned to good account in producing the only fire-brick of the class manufactured in the neighborhood of London, the products being of exceptionally high quality.

Japanese Glue.—This glue or cement is made by mixing finely-powdered rice with enough cold water to make it into a smooth paste, then adding boiling water until it is about the right consistency, finally boiling it in a suitable saucepan for one or two minutes. This cement is strong and of a white color, and so is well adapted for a variety of work, especially that of a delicate nature.

Toughened glass, about which there was much written five years ago, has never taken the place of ordinary glass, although undoubtedly superior thereto. Its extra cost is probably the cause of its failure to win popular favor. Now, however, Mr. Frederick Siemens proposes to adapt the toughened glass made by his process to the manufacture of street lamp posts, water mains and other articles made of cast iron. He claims that his glass is stronger than iron castings, imperishable and incorrodible. The cost per pound, allowing more profit to the maker than can be obtained from iron, is twice as much as the cost of the latter, but the specific gravity is so much less that the consumer will be able to obtain glass articles about 30 per cent. cheaper than similar goods in cast iron. Even with such experienced inventors as Siemens, however, performance does not always keep pace with promises, and the difficulty of revolutionizing industries and the use of materials is so great that, whatever may be the merits of toughened glass, it will take a long while to bring it into common use.

The *Révue Industrielle* illustrates and describes the steam ferry boats constructed by Stapfer, De Duclos et Cie, of Marseilles, for use in that port. These boats consist of two flat-bottomed iron hulls 33 feet long, 40 inches wide and 5 feet high. These are placed about 7 feet 6 inches apart, and upon them is laid the deck. In the middle are the engine and boiler, driving a screw, which is placed midway between the two hulls. On either side of the engine is passenger accommodation, the compartments being arranged somewhat on the same plan as a tram car. Forty passengers can be carried, and the total weight, when they are on board, will be about 19 tons. The engine, which develops a power of from 16 to 18 horses, has a 9-inch cylinder, with a 6-inch stroke. The speed does not exceed 4 knots, but for the short distance which they travel it is considered sufficient.

At the recent trial of sheep binders after the Royal Agricultural Society show at Derby, the McCormick Harvesting Machine Company carried off the first prize—a gold medal. The trials are reported to have proved that the machines of the Appleby type are the most efficient binders now in the field.

Cutlery.

FRIEDMANN & LAUTERJUNG,

Manufacturers of

PEN AND POCKET CUTLERY,
Solid Steel Scissors, Shears, Razors, &c.Sole proprietors of the renowned full concave
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Agents for the BENGALL RAZORS.

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Superior Cutlery of all kinds and grades, from the finest in pearl and ivory handles to the lowest price in wood and iron handles.

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BUTCHERS' and HUNTERS' KNIVES

Are warranted to be equal in style, finish and quality, to any goods made in the world,

“COMPARE, THEN JUDGE.”

We are the sole owners of the Gardner Patent Guard and Rest for Carving Forks, and the manufacture of fine carvers is with us a specialty.

AMERICAN MADE RAZORSCUSHION BELT
OUR NEW PATENT COMBINATION-RAZOR STROP. N. 230.

J. R. TORREY, MANUFACTURER OF STROPS. J. R. TORREY RAZOR CO., MANUFACTURERS OF RAZORS.

In all Styles. To introduce we offer HOLLOW GROUND RAZORS at \$1.50, \$1.75, \$2; Ivory, \$2.50. Our SWEDISH GEM RAZORS, \$1.75, \$2, \$2.50; Ivory, \$2.50. All our own make, and warranted the best cutters in the world. As razor makers we know what is needed to sharpen a dull razor, and will mail for 75 cts. a strop warranted to set a fine edge to any razor. If in morocco case, \$1. Catalogues to the trade.

Factories at WORCESTER, MASS.

BRADFORD & ANTHONY, BOSTON,

IMPORTERS, MANUFACTURERS' AGENTS AND WHOLESALE DEALERS IN

CUTLERY.

HAVE BOUGHT OF

JOHN RUSSELL CUTLERY CO., who have now ceased carrying stock in New York, the entire stock, comprising the full assortment of

TABLE CUTLERY,

Butchers', Hunters', Painters', Druggists' and Household Knives, POCKET KNIVES, PLATED WARE, WORKS.

which they have hitherto carried in New York. Included in this purchase are Many Specialties and various items which we can sell at

SPECIAL & ATTRACTIVE PRICES.

We shall in the future, as heretofore, be always prepared to fill orders at Manufacturers' Prices for all of John Russell Cutlery Co.'s Goods, as well as for all descriptions of

American and Foreign Cutlery.

WE INVITE THE ORDERS OF THE TRADE.

BRADFORD & ANTHONY, Boston, Mass.

JOHN WILSON'S CELEBRATED

TRADE MARK.
FOUR PEPPERCORNS AND A DIAMOND.

GRANTED A.D. 1766 BY THE CORPORATION OF CUTLERS OF SHEFFIELD AND PROTECTED BY ACT OF PARLIAMENT

REGISTERED ALSO AT WASHINGTON U.S.A. ACCORDING TO ACT OF CONGRESS

ALSO AT LEIPZIG, IN ACCORDANCE WITH THE GERMAN TRADE MARKS' REGISTRATION ACT.

WORKS: SYCAMORE ST., SHEFFIELD, ENGLAND. Established 1750.

Manufactured of imported English Cast Steel.

Every Pair Warranted.

For samples and prices address,

GIFFORD MANUFACTURING CO., Union City, Conn.

The American Dynamo-Electric Machine, For Electro-Plating, Electrotyping, &c.

Requires no Water.

Combining Improvements.

Cannot Reverse Current.

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ZUCKER & LEVETT, Genl. Agents,

1837.

HALL & ELTON'S GERMAN SILVER.**SCIENTIFIC AND TECHNICAL.**

Prof. B. Tilliman, in a paper contributed to the *American Journal of Science*, describes

A LARGE DEPOSIT OF SULPHATE OF SODA, or thenardite, as it is called by mineralogists. It occurs on a bench about 50 or 60 feet above the river Verde, Maricopa County, Arizona, and crops out for a distance of 800 feet. By an analysis in the Sheffield laboratory, under the supervision of Prof. O. D. Allen, by Mr. Geo. M. Dunham, its constitution was found to be as follows :

	I.	II.
Chlorine.....	0.095	0.097
SO ₃	50.410	50.310
CaO.....	0.120	0.130
MgO.....	0.021	0.023
Na ₂ O.....	[42.964]	[43.070]
Insoluble.....	0.390	0.370
Total.....	100.000	100.000

Considerable attention has lately been attracted to

DOLBEAR'S INDUCTION TELEPHONE, which is quite unlike any of the instruments previously brought to the public notice. It is, in fact, an articulating air condenser ; but it is so neatly contrived as to constitute a novel invention. The receiver is in shape and size like a watch telephone of the Bell order, but it consists merely of an ebony case, inclosing two parallel metal diaphragms insulated from each other by the air and ebony. The back plate is fixed round its rim, and at its center by a screw which bears upon it, and the front plate is free to vibrate before it. A hole drilled in the middle of the latter opens into the cavity in the case which is placed against the ear. These plates are connected in circuit with the line. The transmitter consists of a Reiss telephone, in which the platinum spring contact is replaced by a carbon contact—that is to say, a microphone contact—and the vocal current is passed through the primary of an induction coil, which has its secondary in circuit with the line. The secondary currents, after traversing the line, enter the fixed plate of the receiver, and by their attraction on the free plate set it into audible vibration, which is heard as speech or music. It is not even necessary to connect the front plate to earth, for if it be in connection with the body of the listener through the case, he will hear the message all the same ; and receivers are made with only one terminal. Dolbear's telephone will be exhibited at Paris ; and it is said to be remarkably free from the extraneous noises heard in the Bell instrument.

Foreign advices call attention to some recent

IMPROVEMENTS IN VOLTAIC BATTERIES, which are likely to have interest for American readers. Some time ago M. Azapis suggested using a solution of chloride of sodium or of sal ammoniac for the acidulated water in contact with the zinc of a Bunsen battery, and the success of the change has led Mr. David Lindo, of Falmouth, Jamaica, to substitute sulphate of sodium for the dilute sulphuric acid in contact with the zinc of a Grove battery. Chlorine compounds might prove injurious in the Grove, and were therefore neglected for the sulphate of sodium. The substitution has given good results ; no amalgamation of the zinc is required, and the intensity of the current is as great as where dilute sulphuric acid is employed. Moreover, the solution of sulphate of sodium answers equally well in the Gironde, and comes to the curious conclusion that valleys are more struck by hail than hills or table land. It seems that a certain depth below the clouds is necessary for the formation or the fall of hail to occur without obstacle. Further, the direction of the valleys traversed have a marked influence on the direction of the clouds, though they only cause a momentary deflection, and the clouds, after following them a certain time, are carried on in the general direction of the vertical movement. For example, if valley be in the axis of the zone of hail, or a little inclined to that axis, the hail clouds seem to be carried along that valley as dead leaves are carried along by the wind in a trench. If the valley be subdivided by a mountain spur into two others, the hail cloud also divides and the two secondary valleys are ravaged in their turn, at least to the extent in which they are within the zone of hail. Valleys lying across this zone have also an influence, though less marked. When the clouds pass over them they show a tendency to descend and to spread out on the two sides of the zone, so that the zone is broader over valleys than over plateaux, and the ravages are often greater. It might have been added that this was to be expected, since storms and air currents of all kinds generally follow the depressions of the earth, being guided by the hills to a very great extent.

It is notorious that the water supply of continental towns is bad and the

RESTORATION OF AN ANCIENT AQUEDUCT, of the reign of Augustus, recently completed as part of the works for the supply of Bologna with water from the Setta, near its junction with the Reno, about ten miles from Bologna, suggests that possibly some of the other old aqueducts, or works connected therewith, though in a more or less ruined state, might be brought into use. There are the Aqueduct du Gard, which once formed part of the water supply works of Nimes ; the Aqueduct de Segovia, also built by the Romans ; the Aqueduct de Maintenon, built in 1684-5 for the supply of water from the Eure at Pongoin to Versailles ; and the Claude Aqueduct, near Rome. Of course, many of the aqueducts in a more or less ruined state are wholly useless, and this may be so with some of those mentioned ; but this is not necessarily the case with all. Some of the works no doubt remain tolerably intact, as in the case of the underground tunnel which brought, and now again brings, the water into Bologna. The Romans in constructing these supply works followed the course of the Reno, tunneling the hills, sinking their work beneath the beds of the precipitous torrents which rush from the mountains into the river, and thus bringing the waters to the gates of the city, where they were divided, one portion going to supply the public baths, and the other probably destined for the fountains of streets and public squares. The restoration of this important work is due chiefly to Count Gozzadini, who caused an accurate survey of the aqueduct to be made about twenty years ago, and in 1864 published the results of the investigation in an elaborate memoir. Since then, a contemporary says, the work of restoration has been going on with a thoroughness and skill calculated to make the new work as enduring as the old. The aqueduct was originally made of brick and stone, cemented with lime and volcanic sand, and the unbroken portions remained as hard as granite. The work of tunneling and the masonry were so thoroughly well done that both stonework and brickwork are still as solid as the rock itself, the only considerable breaks being where the turbulent Reno had washed away with its clay banks several portions of the aqueduct, or where the headlong torrents which rush down into its stream had excavated their own beds and carried away the artificial substructure.

Sir Humphrey Davy was the first to note that the voltaic arc became longer when confined in vacuum, and that the carbons were not consumed. In JAMIN'S EXPERIMENTS WITH THE ELECTRIC CANDLE IN VACUUM, it has been found that when thus confined, or when hermetically sealed in vessels containing inert gases, the carbons are not acted upon. Such a gas is nitrogen, acetylene, carbonic oxide and marsh gas. Most other gases are decomposed by the arc ; for example, steam gives carbonic oxide and acetylene, carbonic acid doubles its volume and changes into carbonic oxide, and the hydro-carbons, especially vapor of petroleum, is decarbonized, and produces filaments of coke connecting the carbon points. This action is employed to good purpose in fabricating the carbon loops for the Maxim incandescent light. Air in the sealed vessel

BRASS FOUNDERS

of the

West and Southwest

Our Crucibles are large in

size, pouring three pounds of

metal to the number, and are

unexcelled in refractory qual-

ity. You can obtain them at

manufacturers' offices of our

agents in St. Louis, saving you

time and freight. All our Cru-

cibles are fully guaranteed.

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312 North Third St.,

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PROPRIETORS OF

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MANUFACTURERS OF

Handles and Spokes,

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Sole Agent for the United States and Canada.

For pamphlets please address the above, P. O.

Box 2116, New York.

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Sole Manufacturer,

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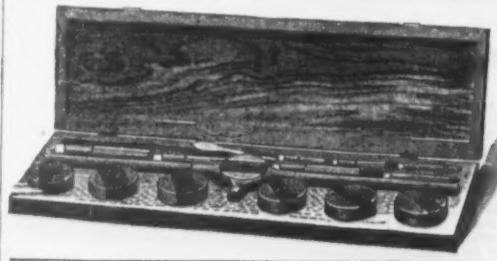
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Emery Wheels and Packing.

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LARGE WHEELS MADE ON CAST-IRON CENTER IF DESIRED

Emery Wheel.

Section of Emery Wheel showing Iron Center.

Emery Wheel.

The properties of these Wheels are such that they can be used with great advantage and economy for cutting grinding and finishing wrought and cast iron, chilled iron, hardened steel, slate, marble, glass, etc. These wheels are extensively used by manufacturers of hardware, cutlery, edge tools, plows, safes, stoves, fire arms, axes, skates, agricultural implements, and small machinery of almost every description.

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For Packing the Piston Rods & Valve Seats of Steam Engines & Pumps

B represents that part of the packing which, when in use, is in contact with the piston rod.

A the elastic back which keeps the part B against the rod with sufficient pressure to be steam tight, and yet creates but little friction.

This packing is made in lengths of about 2 feet, and of all sizes from $\frac{1}{4}$ to 2 inches square.

Corrugated Rubber Mats and Matting,

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This practical and inexpensive article—especially for use where exposed to ice, snow or slush—was first introduced by this company several years ago, and its real value is in being almost indestructible, when proper materials are used in its manufacture, whilst the cheap, inferior quality forced on the public by reckless imitators of our patent goods soon becomes brittle and crumbles to pieces. Address

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PHOSPHOR-BRONZE.

offers a peculiar interest. First, there are

seen vapors produced by the combination of oxygen and nitrogen; but this combination

is soon destroyed, and the gas appears color-

less again, because of the oxygen combining

with the carbon. Nitrogen and carbonic

oxide then remain in the vessel. While the

hypnotic acid vapors are in the vessel the

arc changes in tint and elongates; but at

last, when the chemical transformations are

complete, the arc is good and of a greenish

blue. The important point, however, it is

stated, in a practical sense, is that it becomes

quite fixed, and varies neither in color, pos-

ition or intensity, as all naked arcs, however

well regulated, still do. The spectrum is that

of carbon raised to incandescence without

burning, a spectrum such as has been ob-

served in the tail of the recent comet by

M. Thollon. On the other hand, the spec-

trum of a naked arc glowing in the air is

complicated by that of burning carbon. In

an inert gas, therefore, the arc is a purely

electric phenomenon, and it can be directed

by electro-magnetic action. The ordinary

arc, again, is composed of this electric

incandescent current, and the flame due to

the burning carbons and their irregular

waste. The cessation of burning also stops

the waste of carbons. When the Jannin

candle burns in the open air it is consumed

at the rate of 16 millimeters per hour;

when closed in a sealed vessel this consump-

tion is reduced to 0.2 millimeters per hour.

Each candle lasts 160 hours, or 16 times

longer than when burned free, and each lan-

tern 800 hours, or 80 nights of 10 hours

each. Not only the fixity of the arc, but its

durability, is thus very much increased.

An interesting account has recently

been published of an English

TRIAL OF STEAM LAUNCHES,

one by Herreshoff and the other by an Eng-

lish builder. The trials extended over three

days, and were made by the steam depart-

ments at Portsmouth Dockyard with a

Herreshoff and a White's 48-feet launch.

Herreshoff is worked on the inventor's

coil boiler principle, and has both the engine-

room and the stokehold inclosed, forced air

being used at a pressure of 2 inches as mea-

sured by the water gauge. White's, on the

other hand, is an ordinary service pinnace,

having only the stokehold inclosed, and is

propelled by twin screws. As the result of

six runs on the measured mile in Stoke's

Bay, the Herreshoff realized a mean speed of

17 $\frac{1}{2}$ miles (5.124 knots), and White's a

speed of 14 $\frac{1}{2}$ miles (12.604 knots) an hour.

No diagrams were taken, as Mr. Herreshoff

objected to their being taken with a closed

engine room, so that the horse-power devel-

oped was not ascertained. The vessels were

also tested with respect to the economical

consumption of fuel. Each pinnace took on

board 10 cwt. of coal, and, having proceeded

to the westernmost measured mile buoy,

were kept running at full power until the

engines stopped for want of steam on the

The Iron Age

AND

Metallurgical Review.

New York, Thursday, September 8, 1881.

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 The publishers of *The Ironmonger*, 44 Cannon street, London, England, will receive orders for subscriptions and advertisements on our regular terms.

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Thirty-sixth Page.—Boston Hardware and Metal Prices.

Considerable discussion has followed the publication of a charge against the Standard Oil Company, of giving short measures in oil barrels. The charge is to the effect that the oil is short from one to four gallons on each barrel. This, on 40,000 barrels production a day, would amount to a snug sum. The story seems too improbable for belief. We have not the least doubt that the Standard would buy a Legislature or crush out a competitor, without the least twinge of conscience, but it has not yet gone into the

business of stealing oil a gallon at a time. Besides, such a thing would be readily detected. Any one can gauge a barrel of oil, and it is absolutely impossible that this practice could have continued, even had the Standard been so minded.

Our Imports and Consumption of Iron for the Fiscal Year.

The summary statement of the Bureau of Statistics for the year ending June 30, 1881, is of considerable interest in its figures of imports of iron and amount remaining in warehouse.

The imports of certain forms of iron, &c., for the fiscal years 1880 and 1881, is as follows:

	1879.	1880.	1881.
Pig Iron, tons	3,014	178,892	42,405
Bar Iron, tons	3,781	16,924	8,449
Boiler Iron, tons	418	51,743	D. 44
Band, hoop and scroll, tons	115	D. 53	D. 52
Railroad Iron, tons	716,593	38,744	D. 64
Sheet Iron, tons	1,323	1,181	D. 51
Old and scrap iron, tons	123	121,584	66,148
Steel Ingots, &c., value	\$23,795	\$181,083	\$167,455
Steel rails, tons	1,303	14,110	22,719
Inc. or Dec. Per Cent.			
74,461			
202,571			
I. 171			
21,161,327			
4,098,467			
6,217,448			
I. 35			
6,408,050			
I. 203			

The most noticeable fact shown in this table is that there has been a marked decrease in 1881 in the quantity of imports of all kinds of iron and steel, except those that are used in railroad construction, for in this category we must include steel ingots, bars, &c., much of which has largely gone into railroad construction, being rerolled as rails and worked up into springs. It will also be noted that the decrease in the amounts imported varies but little in the entire list, being between 50 and 60 per cent. On the other hand, the decrease in the values imported differs materially from the decrease in amount. The decrease in the values of pig, bar, sheet and scrap iron is less than the decrease in amount, which would show that the average values of these grades of iron are greater in 1881 than in 1880. On the other hand, the decrease in values of boiler, band, hoop and scroll is greater than the decrease in quantities, indicating that the average values of these are less in 1881 than in 1880. By similar reasoning we find the value of railroad iron less in 1881 than in 1880, and of railroad steel greater.

Altogether, the outlook is considered satisfactory.

the fact that he has been so often caught shows that he is not so smart as a good many others who, once incarcerated, would be likely to stay in jail until let out.

Trade Prospects.

In New York is to be found the commercial pulse of the nation, and, in current parlance, it is satisfactory to be assured by representatives of all the leading branches of business that "the condition is normal." The speculative fever which has raged in Wall street for many months, with slight intermissions, has not affected business appreciably in any of the legitimate channels. More than this, some of the old merchants who have been consulted have no fears of the consequence of possible reaction in the financial market, as the money now attracted to speculation would be thrown back for investment elsewhere. Even in the contingency of the death of the President, there would be no apprehensions of disturbance.

As yet, the fall trade proper has scarcely commenced, although buyers from the more remote markets of the West and South have already made a large portion of their purchases in the dry goods and grocery lines, quite sufficient to indicate a prompt payment of obligations on their part, and a prosperity equal at least to that of last year. The partial failure of crops in some parts of the South and West, owing to the drought, has induced more caution in buying, and perhaps a more careful examination of credit accounts; but it is not believed that the volume of transactions will be sensibly affected. As the rule, the Southern man buys for cash. Western merchants, taking advantage of the low rates of transportation, are already making their appearance. It is believed that the agricultural classes will be liberal consumers. They have the profits of two years of large prosperity to draw upon, if necessary, and it is confidently predicted that the higher average of prices this year will make good the shortages of the harvest. Altogether, the outlook is considered satisfactory.

The Example of Industrial Arbitration.

We have several times alluded to the existence and working of an arbitration board for the settling of labor disputes in the cigar factory of Messrs. Straiton & Storm, in New York City. This is the only arbitration board in this country, though there is a large number of them in England, governing the wages of some hundreds of thousands of working men. This New York board grew out of the great strike of 1876, and has been in active operation since that time. In its constitution it differs from all other boards of which we have any knowledge. It is composed of nine members, five of whom are employees, three others are quasi-employees—that is, foremen employed by the firm—and the ninth is a member of the firm. In any event, the employees have an actual majority in the board, and can, if so inclined, decide in their own interest.

This board has recently been called upon to decide a demand for advanced wages, and the conduct of the case furnishes a most interesting chapter in the history of industrial progress.

The demand was from 700 employees in the mould-working department,

and was based upon the increased cost of living.

This demand was really in violation of a promise made in 1880, at a time when other shops reduced their wages but this firm did not.

The promise was that there should be no demand for an advance when trade got better, until other shops came up to the same price that Straiton & Storm were paying.

When the demand was made Mr. Storm asked the men to get the prices paid in other shops on the same classes of goods, and at the meeting of the board it was found that, on the nine grades of cigars made by the mould workers, Straiton & Storm paid an average of 60 cents more per thousand than was paid in the other factories.

Some of the men argued that this did not make any difference; that the men were poorly paid; that some one had to make a beginning in advancing prices, and, though they were paying 60 cents more, it might as well be Straiton & Storm as any other firm.

In other words, the argument was: We will take all we can get, fair or unfair.

The discussion, which we cannot reproduce, was mostly in this vein, but when the question of an advance was put to a vote, but two men voted for it and seven against it. In other words, three of the cigar makers voted against their fellows, and this though in the discussion the speakers claimed they were unanimous in the demand.

The case before this board was, in the amount involved, of small import. What it involved in its result and in its teachings,

was of no common import. At the close of the meeting Mr. Storm, in an address, stated his gratification at the action of the board, not because the decision was in favor of his firm, but because it established the broad principle that the workmen could be trusted with a voice in the adjustment of their wages, and because a spirit of fairness had governed them. These are hopeful signs, and it is certainly a source of regret that this system could not be tried in other industries.

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The *Free Trade Bulletin*, which has just made its appearance in this city, starts off with the following at the head of its first column:

"Free speech, free press, free soil,

free men! Why not free trade?" Because free speech has emphatically pronounced against it; because our free press has generally lent its powerful influence to the encouragement and diversification of American industry; because our free soil would not remain free if tilled to supply England with materials to be returned to us as manufactures; because an overwhelming and unquestioned majority of our free men have cast their ballots for twenty years in favor of the policy of protection to home industry. These are reasons enough "Why not free trade!"

The Boston Decision on Open-Hearth Metal.

As the facts concerning the recent decision of the jury at Boston, in the case involving the duties on open-hearth metal, become better known, the wonder grows as to how a jury could render such a verdict. The question at issue was this: Is open-hearth metal steel or iron? Under the claim of the plaintiff allowed by the court, the question turned upon what Congress meant by "steel in bars," and "iron in bars," in the tariff enacted in 1873. This turned again on what was the commercial designation of this metal at that time; in other words, was this metal known as iron or steel in 1873?

The testimony of the plaintiff, who desired

to have it brought in as iron, was almost all general, and to the effect that all metallic compounds of iron that would not harden and temper were known as iron, and all that would so harden and temper were known as steel. On the other hand, the defendant showed by a mass of testimony that the metal in question was known as steel. Some of this testimony was very strong. For example, Mr. Ralph Crooker, formerly superintendent of the Bay State Iron Works, who made the open-hearth steel as early as 1872, testified that he had always known it as iron, and yet he was confronted with an old memorandum book of his own referring to this metal as "Martin Steel," the trade-mark under which it was sold. The testimony of the Bay State Steel, and circulars of this company of 1872-74 were shown, in which the company advertised the metal as steel. Representatives of Hussey, Wells & Co. testified that since 1851 they had sold as steel metal that was required not to harden. The mass of testimony from many of the steel makers of the country, showing that low carbon metal that would not harden or temper had for years been sold as steel, was a surprise even to steel manufacturers themselves—and yet the intelligent jury decided the metal was iron. This case shows the necessity, not only of amending the tariff act so that there shall be no doubt as to its meaning, and so that metal made by the open-hearth process shall be classed as steel, the same as metal made by the Bessemer process now is, but it also shows the necessity of some tribunal more intelligent in these matters than a jury to decide these questions. It may be well to say that the government has taken an appeal to the Supreme Court. It is not probable, however, that a decision can be reached for two years, and in the meantime open-hearth metal is iron or steel according to circumstances.

English and American Pumps.

In our recent remarks upon this subject we have apparently deeply injured the feelings of certain English pump manufacturers. They are, however, very courageous men, and, in a recent number of the *Ironmonger*, attempt to sustain themselves in the assertion that their pumps are as good as those made in America. Like all the other statements which have of late appeared upon this subject, they are mere assertions. Many of them bear upon their face the evidence of their falsity, while others are fabrications of the most inexcusable kind. Deliberate misstatement in regard to American pumps has been among the very unpleasant features of all that has appeared from the other side of the water. We consider this entirely unjustifiable, even in an attempt to obtain gratuitous advertising. Most of the statements can be seen to be false by the examination of any of the American pump catalogues.

The number of styles of pumps to be had in England is, we judge, very small, for in all the boasts of superiority which have been made only two kinds are mentioned, and both of these are of old patterns. We note such statements as the following: "The leading American brands, on the contrary, have these parts screwed bodily to the 'pump'—referring to the top and bottom chambers. This is a false statement, born, we hope, of ignorance, but from the number of times it has been contradicted, we fear that it is a deliberate falsehood. Again, in spite of the statement to the contrary, no American pumps are packed with 'leather strips,' and those who assert this should know better, for one firm has said that they have an assortment of American pumps in their works. After having made this statement, this firm say that they have only two kinds and six sizes in all. In other words, they have the pump which they bought for patterns, and no more. It is apparent that some of the so-called improvements which they have made are only changes, compelled by want of proper machinery to finish the work in the best manner. If any of these American pumps are packed with 'strips'

factured cottons, of which exports since January 1 are beyond all precedent, and must continue through the year, on account of orders already given. By some of the manufacturers' agents further orders cannot be considered. The comparison for a series of years is as follows:

Packages.	Valued at
Since January 1, 1881.....	95,274 \$5,484,811
Same time in 1850.....	70,953 5,071,261
Same time in 1859.....	95,504 5,098,472
Same time in 1878.....	79,040 4,915,067
Same time in 1877.....	75,120 5,105,597

The chief demand is for the Chinese market, which would have taken still larger quantities had it been possible to deliver them as promptly as desired. This could not be done, however, as looms at work on the special qualities designed for foreign consumption are fully engaged for the remainder of the year. The home trade do not as yet realize the importance of these demands on the means of supply. These successes are attributed mainly to the reputation that Americans have for dealing in "honest goods."

There is a belief prevalent in Europe, which is not without foundation, that Americans and those who work in America are accustomed to "toil terribly." Not that the work done here is harder or more difficult in itself, but as a young nation, with all our achievements before us, we have not yet reached that stage where we are willing to take things easy. We seek for good results in a short time, and to reach them we are willing to make great present sacrifices. This has often been remarked about our iron mills. The amount of iron some of our trains of rolls turn out is almost past belief to those accustomed to English methods, though there is no doubt Englishmen could do the same if they would; but they do not choose to do so. An intelligent English iron worker who had come to this country with the intention of settling here, lately decided to go back again, and is reported as saying: "I wouldn't live here a day. I am a workingman and I like to work; but I couldn't stand it here. Why, you men work as though to-morrow was your last day in this world, and you had to fill all orders before you left." A large steel manufacturer who has been traveling in this country expressed his astonishment at the way our workmen toiled, and declared that the same men who were working so here would not work as hard before they left England. He modified his statement, however, by suggesting that the difference in the climate would not let them. Of course it is very pleasant to our vanity to know that in this, as in some other things, we "beat all creation;" but there may be some doubt if after all it is the best way. Perhaps most of us would accomplish as much if we did not work quite so hard.

We are authoritatively informed that a recent ruling of the Treasury Department with regard to steel blooms, restricts the scope of the decisions of 1867 and 1879 to rail blooms, which were the class of blooms passed upon. Blooms for other purposes than manufacture into rails will be required to pay the 2½ cents per pound duty. This is an important indication of a change in the Treasury policy.

New Customs Rules in Cuba.—A gentleman interested in the trade between the United States and Cuba furnishes the following information: "For many years foreign shipmasters trading with Cuba have been subjected to the continual annoyance of fines, imposed by Spanish customs' officials, for alleged informalities in their vessels' manifests. From 1868 to 1874 these fines were so intolerable that other governments were compelled to take notice of them, and the subject was brought to the attention of the government of Spain by a collective remonstrance from the representatives at Madrid of all the principal maritime nations. During those years fines were imposed for very trifling omissions in the manifests, and for reasons which would have been laughable but for the sums extorted from the shipmasters. During the last five or six years there have been less complaints in regard to fines, although the regulations remained unchanged up to June last. In lieu of these fines, however, foreign shipmasters have been subjected, in many ports of the island, to an outside system of petty extortions of officials and interpreters, who, for a douceur, would agree to obtain exemption from fines. Many paid these demands to be rid of the uncertainty of having to pay larger sums at the custom houses when they cleared their vessels. The regulations referred to have recently been superseded by a new set of very complicated and ambiguously worded ordinances, which give customs' officials even a greater power for mischief than formerly, inasmuch as they can, at their pleasure, impose fines ranging from \$10 to \$500, one-half the fines going to themselves; and they claim that there is no authority on the island having power to remit their portion of the fines. Should these new ordinances be enforced to the letter, there is in store for foreign shipmasters visiting Cuba during the coming crop season, a series of annoyances such as they have never before experienced in their intercourse with these custom houses."

The managers of the Matanzas Exposition are still debating the momentous question of whether or not the fair shall be reopened next November, at least long enough to clear it of the debt still unpaid to sundry patriotic capitalists, who advanced the necessary funds for the enterprise, trusting that they would be paid out of the receipts. A balance of \$50,000 is due them. Should the fair not be opened, the sale of buildings and other appurtenances would not realize over \$20,000, so that it is for their interest that the

reopening should take place whenever the weather permits, and a combined effort is to be made to entice foreign exhibitors to attend it, by offering greater inducements than before to all comers.

WASHINGTON NOTES.

(From Our Own Correspondent.)

WASHINGTON, D. C., Sept. 2, 1881.

REVIVAL OF COTTON MANUFACTURING INDUSTRY IN THE SOUTH.

At the Treasury Department, through the special agents in the South, information has been received that the movement inaugurated with a view to the promotion of the cotton manufacturing industry in that section, is meeting not only with universal approbation and support, but promises to be a great success. The buildings and machinery of mills which were erected years ago, at a time of a similar revival of industrial activity in the South, are being repaired and put in working order, and operations are to begin at once. This enterprising spirit seems to prevail especially in the States of North and South Carolina, Georgia and Alabama.

It is reported that the movement is entirely in the hands of Southern men, though the capital is largely from the North. The only difficulty in the way of immediate success, it is reported, will be the securing of the skilled labor required to attend to the delicately constructed and intricate machinery used in spinning and weaving. Agents are now in the North visiting the principal cotton manufacturing centers, to secure a sufficient number of skilled workmen to take direct charge of the machinery and the instruction of young men and women in the different branches. It is a matter of considerable speculation as to what view the middle class of the white population of the South will take of this opportunity for lucrative employment. There has always existed there such an antipathy among the working classes against factory life, a feeling for which the Southern leaders of ante-bellum days are largely responsible, in their slurs upon that active and industrious class at the North, that some apprehensions are felt on this subject. It is stated that the better class of colored people are taking freely to this new field for the employment of labor, and are apt in learning the duties required of them.

The theory of this industrial revival is that economy of transportation of the raw materials will overbalance other considerations at present, and that the Southern mills will be able to successfully compete with the old establishments of the North in prices, if not in quality, especially in the lower grades of goods. The failures of previous attempts in this same direction are attributed to local institutions, social conditions and popular prejudices, which either do not now exist, or have been greatly modified since the abolition of slave labor, the close of the rebellion, and the imperative necessities which ever since have been so completely revolutionizing public sentiment in the South on economic and social questions.

The extent of cotton manufacture in North Carolina particularly has already assumed noticeable dimensions. The establishments mentioned are in Alamance County, running on full time; in Randolph County, a new mill just completed, and the Randalman, with 8500 spindles and 500 looms. This mill has purchased another site and intends to increase to 10,000 spindles. On the Haw River a large mill is being still further extended, and factories are being erected on the Yadkin River, near Idol's Ferry, at Charlotte and Concord. The Rock Hill Factory, in York County, S. C.; the Balesville Factory, at Greenville, S. C.; the old Numa Factory, at Autangville, idle for years, and the Enterprise Factory, at Augusta, Ga., will begin operations in September, employing about 150 hands each. Other factories are contemplated. It is, therefore, evident that the Cotton Exhibition of the South is not a mere show thing to illustrate the industries in that section in that line, but part of a general awakening of a spirit of enterprise which will, if pursued, inevitably result in great good.

A REMARKABLE INVENTION.

Much interest has been created in navigation circles of the Navy Department, by the announcement that a mechanic of Philadelphia has invented an improved sounding instrument which does away entirely with the use of lead, rope, wire or any other apparatus hitherto used in indicating depth in the ocean, either for safe navigation or scientific inquiry. Commander Sigbee, who is an authority on soundings and other questions kindred thereto, was sent to Philadelphia to examine this remarkable piece of mechanism, and he returns with very encouraging accounts of the present development of the theory, and favors practical experiments on shipboard, so that the scale, which is all that is wanted to complete it, can be computed and established. This, he says, can only be done by absolute soundings, so as to compare the results of a measurement at given depths with the effect of the same on the instrument, and make the indication. The inventor's name and the details of the instrument are held as a profound secret at the Navy Department for the present. The theory of the instrument is based on the laws of gravitation and attraction, and the instrument is expected to record depth so that they can be read by mere inspection, the same as a thermometer records temperature or a barometer atmospheric pressure.

Among the most notable inventions in this line may be mentioned that of Prof. Siemens, of Germany, who devised a somewhat familiar instrument, called a bathometer; Sir William Thomson, of England, who invented a sounding machine for sounding below 100 fathoms, and another Englishman, named Bassnett, an atmospheric sounder, which could be used equally well while the ship was in motion, and showed by compression of air no matter what the position of the line.

The new instrument is said, by those familiar with the subject, to be far ahead of anything of the kind known to the department, it enabling the navigator to see the

depth by examining the scale, the mechanism being acted upon and influenced by the principles of terrestrial attraction, and indicating whether the bottom of the ocean is far or near. It is conceded that the utilization of such an instrument would revolutionize and simplify navigation so that officers of a ship could instruct the man on deck to give notice when, say, 50 fathoms is indicated, and instead of dropping the lead, this indicator would show the approach to shoal water. The inventor of this wonderful instrument will be given every opportunity for experiments and assistance in making the recording scale.

NATIONAL CONVENTION OF MANUFACTURERS TO REVISE THE TARIFF.

The committee charged with the preparations for holding a National Convention of Manufacturers, Farmers and Mechanics, to effect a revision of the tariff in furtherance of American industry, have decided to hold said convention in New York City on November 24. The committee consists of the following named gentlemen:

Thurlow Weed, New York.

Simon Cameron, Harrisburg, Pa.

Hon. Daniel J. Morrell, president of the Iron and Steel Association.

Thomas Dolan, president of the Philadelphia Association of Manufacturers of Textile Fabrics.

Thomas S. Harrison, president of the Manufacturing Chemists' Association of the United States, Philadelphia, Pa.

Wellington Smith, president of the American Paper Makers' Association, Lee, Mass.

O. W. Potter, president Western Industrial League, Chicago, Ill.

A. M. Garland, president National Wool Growers' Association, Springfield, Ill.

J. Phil. Mackey, secretary Silk Association, Paterson, N. J.

Benjamin Allen, president Hosiery Manufacturers' Association, Philadelphia, Pa.

Rufus S. Frost, president National Association of Wool Manufacturers, Boston, Mass.

James Gillender, president Glass Manufacturers' Association of the United States, Philadelphia, Pa.

J. H. Brewer, president United States Potters' Association, Trenton, N. J.

George S. Bowen, president Textile Manufacturers' Association of the West and South, Chicago, Ill.

Henry Bower, secretary Manufacturing Chemists' Association, Philadelphia, Pa.

David P. Swearer, president of the Glass Workers of the United States, Pittsburgh, Pa.

James M. Swank, secretary of the Iron and Steel Association.

William T. Seal, secretary of the Philadelphia Association of Manufacturers of Textile Fabrics.

Albert Chapman, secretary Vermont Wool Growers' Association, Middlebury, Vt.

Thomas Maddox, president Potters' Association of Trenton, N. J.

John Roach, of John Roach & Son, ship-builders, New York.

Stockton Bates, of the Bridesburg Manufacturing Company, Philadelphia, Pa.

W. E. C. Cox, of the Montour Iron and Steel Company, Reading, Pa.

Theodore C. Bates, of the Worcester Corset Company, Worcester, Mass.

Cyrus Elder, of the Cambria Iron Company, Johnstown, Pa.

Selden E. Marvin, of Albany and Remseler Iron and Steel Company, Troy, N. Y.

James L. Branson, knitting machine manufacturer, Philadelphia, Pa.

W. C. Cronemeyer, of United States Tin Plate Company, Pittsburg, Pa.

Giles B. Stebbins, lumber, Detroit, Mich.

D. F. Houston, of the Chester Rolling Mill, Thurlow, Pa.

Marcus Hanlon, of the American Protectionist, New York.

Oliver Williams, of Catasauqua Manufacturing Company, Pennsylvania.

P. H. Laufman, of Apollo Iron Company, Pennsylvania.

Andrew Wheeler, of Morris, Wheeler & Co., Philadelphia, Pa.

Albert F. Damon, of Pennsylvania Salt Manufacturing Company, Philadelphia, Pa.

Charles Ridgely, of the Springfield Iron Company, Springfield, Ill.

General S. F. Chalfin and W. H. Dickson, Chester, Pa.

E. M. Boynton, saw manufacturer, Newburyport, Mass.

Calvin Wells, of the Pittsburgh Forge and Iron Company, Pittsburgh, Pa.

Thomas Simpson, of the Eddystone Manufacturing Company, Limited, Eddystone, Pa.

William Sellers & Co., Philadelphia, Pa.

E. N. Bisell, president Merino Sheep Breeders' Association, East Shoreham, Vt.

W. R. Burt, president of the Salt Association of Michigan, East Saginaw, Mich.

Neivigold, Scheide & Co., Bristol, Pa.

Coatesville Iron Company, Coatesville, Pa.

Eaton, Cole & Burnham Co., New York.

Wm. McIlvaine & Sons, Reading, Pa.

St. Louis Stamping Company, St. Louis, Mo.

Fiss, Banes, Erben & Co., Philadelphia, Pa.

Conyrs, Button & Co., Philadelphia, Pa.

Joseph A. Whittier, president Board of Trade, East Saginaw, Mich.

Carmichael & Emmons, New York.

Burnham, Parry, Williams & Co., Baldwin Locomotive Works, Philadelphia, Pa.

F. O. Horstmann, of Wm. Horstmann & Son, Philadelphia and New York.

Wm. A. Gellatly, of W. H. Schieffelin & Co., New York.

The following sub-committee of management was appointed to select a time and place for the convention: C. F. Houston, Henry Bower, Cyrus Elder, J. H. Brewer, F. O. Horstmann, Thomas Dolan, Marcus Hanlon, James M. Swank and James Gillender.

After careful deliberation the decision reached is announced, as above. The committee are also charged with the duty of deciding what business shall be brought before the convention for its action. The deliberations of the committee have proceeded noiselessly, attracting little of public attention, but are none the less effective on this account, and the character and business standing of the gentlemen directly concerned

are such as to give the strongest assurance of salutary results. All the great manufacturing interests are represented—iron, steel and glass of course having due prominence—and the members of the committee are from a wide territory, comprising the Middle and Eastern States, and points as far West as Michigan, securing for this movement a national character. The body of the convention itself will doubtless include many from remote sections. It is suggested that among the topics to be discussed are: 1st, A revision of the tariff in the interest of American labor. 2d, A review of industries that are destroyed or greatly injured by foreign competition, because of erroneous Treasury rulings or defective laws. 3d, The abolition of internal taxes, wholly or in part, and 4th, American ships.

Henry Carey Baird, of Philadelphia; Congressmen McKinley, of Ohio, and Kelley, of Pennsylvania, are spoken of among those who may be expected to deliver addresses.

It is understood that further announcements will be made at a meeting of the Executive Committee, to be held at the St. Nicholas Hotel on the 13th inst. The convention will probably be held at the Cooper Union building.

"The Barb Fence Litigation."

To the Editor of *The Iron Age*.—In a recent issue of your paper you copy, and comment upon, with some appearance of approval, an article from a Western newspaper on the above subject. We certainly belong to a class for whom the *Iron Age* and its positions on industrial affairs have special value. The main question involved in the Iowa controversy in its present shape, is the rights of inventors and their assigns under our patent system. Barb fencing was utterly unknown to the public eight years ago. For the first two or three seasons after its introduction it was bitterly opposed, as absurd in principle and harmful in results. The perfection of barb fencing involved a large number of patents, including not only the first idea of a sharp, repellent barb, but calling for new and complicated machinery for making barbed wire. Then, as has been the case with nearly all valuable patents, there followed an expensive, far-reaching and protracted controversy in the courts.

Now, what class of readers of *The Iron Age*, whether mechanics, working out their inventions in spare hours; or capitalists, through whose co-operation all inventions must come to success; or the public, as general beneficiaries of our patent system, will fail to find each their own advantage and encouragement in the fresh proofs that the really meritorious invention can be advanced to perfection, and its rights successfully defended in the courts, if it is found to be an article of utility and value.

With these plain facts long ago established, and now simply reaffirmed in the case of barb fencing, it is to-day really a question to be discussed by honest men and fair-minded newspapers, as to how cheaply barb fence wire can be made by any one who, disregarding the rights under these barb fence patents, and taking free advantage of all the development already reached, has only to study the cost of metals and rates of labor.

The "life of a patent" is intended to give a reasonable period for the successful inventor, and those who hold rights under him, to reap their joint rewards, and compensate other outlays and ventures the perfect, introduction, and defense of patents require. Without the assurances of such reward, what patent would, or could, ever be brought to success? Is not this the design and meaning of our patent system?

Having thus sought to show that the inventor and those who enable him to realize success are entitled to the extra rewards our patent system holds out, it is now

DUNNING FINISHED STEEL HORSE SHOES.

The most popular Horse Shoe in the world. Will outwear three Iron Shoes.

Dunning Steel Finished Horse Shoes may be ordered in any quantity, packed, assorted sizes to suit, from the following hardware houses:

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HIBBARD, SPENCER & CO., Chicago.
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KELLY, MAUS & CO., Chicago.
PARKHURST & WILKINSON, Chicago.
W. B. BELKNAP & CO., Louisville.
NICHOLS & DEAN, St. Paul.
H. KAHL & CO., Toledo.
W. J. HOLLIDAY & CO., Indianapolis.
COOMBS & CO., Fort Wayne.
GEORGE TRITCH, Denver.
STEVENS & GARRIGUES, Leavenworth.
B. D. WEST & ROSE,
97 Liberty St., New York.
LOCKE, HALE & CO.,
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Send for sample keg, assorted sizes.



Full descriptive catalogues sent on application. Manufactured exclusively by

THE CHICAGO STEEL HORSE SHOE CO., Chicago, Ills., U. S. A.
FACTORY AT PULLMAN (NEAR CHICAGO), ILLS.



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MANUFACTURERS OF

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ESTABLISHED 1863.

Capacity 1000 dozen per day.

GOODS WARRANTED TO GIVE SATISFACTION.

NEWTON'S PATENT STEAM TRAP AND GRATE BARS,
MANUFACTURED BY
PROVIDENCE STEAM TRAP CO., Providence, R. I.
See The Iron Age first issue of each month.

Agents Wanted for Different Locations.



WITH PATENT ADJUSTABLE ATTACHMENT. The only Saw that can be adjusted for either a One-Man or a Two-Man Saw. We make the following lengths, 3½, 4, 4½, 5 feet. Send for sample.

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BROOKLYN, E. D., N. Y.,

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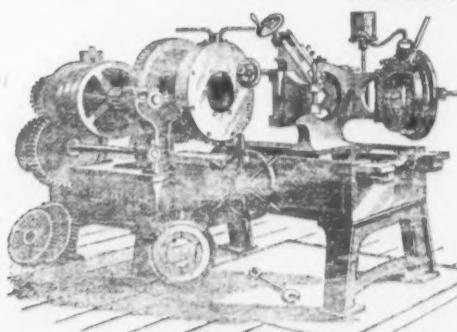
HAND, PANEL, AND RIP SAWS,

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BAND SAWS A SPECIALTY.

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Pipe Cutting & Threading Machines,
For Pipe Mill and Steam Fitters' Use.

TAPPING MACHINES,
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ALSO,
Steam & Gas Fitters' Hand Tools.
YONKERS, N. Y.
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THE BEST NUT TAPPING MACHINE
LATEST IMPROVEMENTS PURDY MACHINE CO.
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GEORGE HUNT,

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which are superseding entirely the Tin Lamps wherever introduced, in consequence of their durability. They are now extensively used in the Iron Districts of Ohio and some in Pennsylvania. We call your attention to and solicit your order for them, confidently asserting that they are an A No. 1 article in every respect.



Sample sent if desired.
PRICE, \$12 PER DOZEN.

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COVERT MFG. CO.,

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COVERT'S

PATENT HARNESS SNAPS,

Chain and Rope Goods.

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Send for illustrated catalogue and price list.

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SPECIALTIES: Fluting Machines, Hand Fluters, Plaiting Machines, Christmas Tree Holders, Bickford Portable Pump, Mrs. Potts' Patent Cold-Handle "Crown" Irons, Ice Cream Freezers and Cake Mixing Machines.

LIGHTNING HAY KNIVES.

WEYMOUTH'S PATENT.



This knife is the best in use for cutting down hay and straw in mow and stack, cutting fine feed from bale, cutting corn stalks for feed, cutting peat and ditching marshes.

The blade is best cast steel, spring temper, easily sharpened, and is giving universal satisfaction. A few moments' trial will show its merits, and parties once using it are unwilling to do without it. Its sales are fast increasing for exports as well as home trade, and it seems destined to take the place of all other Hay Knives.

They are nicely packed in boxes, one dozen each of 50 pounds weight, suitable for shipping by land or water to any part of the world.

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HIRAM HOLT & CO.,

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For sale by the Hardware Trade generally.

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Lightning Screw Cutting Machinery and Tools.



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We call attention to infringements of the Weston Machine in which Automatic Switches are used to prevent change of current. The Weston Co. are owners by grant or purchase of all forms of Automatic Switches for Plating Machines. The addition of these machines will certainly lead to great loss to parties purchasing or using them.

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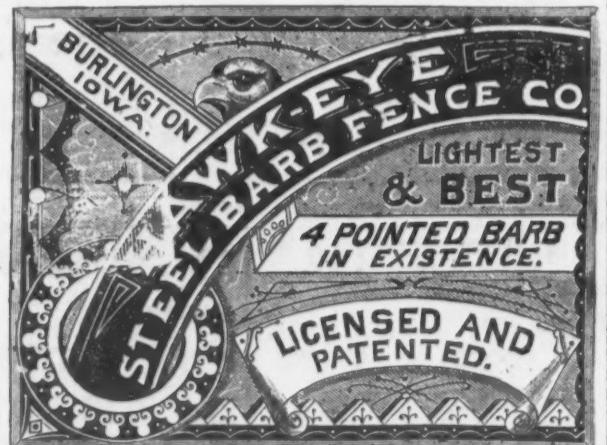
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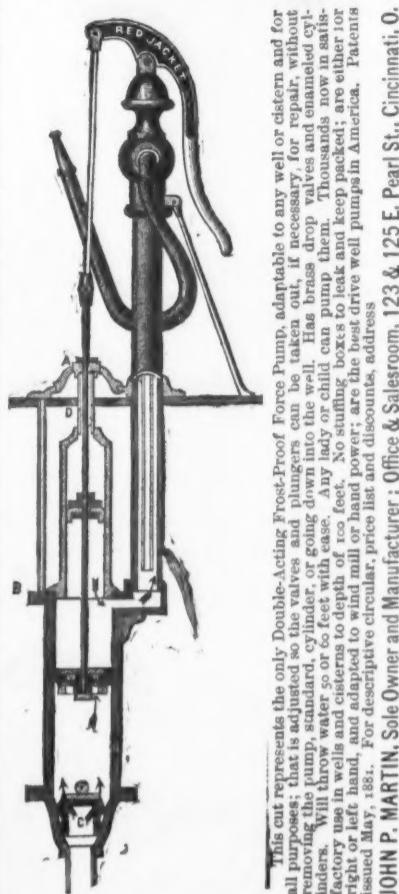
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Martin's Celebrated RED JACKET Adjustable Force Pumps.



This cut represents the only Double-Acting Force-Pump, adaptable to any well or cistern and for all purposes; that is, the valves and plunger can be taken out, if necessary, for repair, without taking the brass tube or cylinder off. This pump is made of brass tube and brass cylinder, with a leather plunger, and is very strong. No stuffing box or gland is required. The pump is made either for right or left hand, and adapted to wind mill or hand power; are the best drive well pumps in America. JOHN P. MARTIN, Sole Owner and Manufacturer; Office & Salesroom, 123 & 125 Pearl St., Cincinnati, O.

Recent Trade Mark Enactments.*

Connecticut.—"An act concerning trade marks" was approved March 25, 1880. It provides that any person entitled to the exclusive use of any lawful trade-mark, or who intends to adopt and use a lawful trade-mark, may file for record such trade-mark in the office of the Secretary of that State in form prescribed by the act. That false swearing in the proceedings shall be perjury, and that the Secretary of State may refuse to record the mark filed if he believes the statement accompanying it to be untrue. A mandamus is allowed to compel the recording. "Every party having the lawful right to make and file such certificate and affidavit, upon the recording of the same in said office, shall become entitled to the exclusive use of the trade-mark therein described, for so long as he or his assigns shall continue to be engaged in the manufacture or sale of the merchandise or description of goods to which it is appropriated." Right assignable in writing. Copies of record, with certificate of Secretary of State under the seal of the State, *prima facie* evidence of title. Infringer of recorded trade-mark with knowledge of record shall pay to owner double damages, and such sum in addition thereto (not exceeding \$500) as the Court may order to be added. Rights to any existing trade-mark not abridged by this act. § 8. Every person who fraudulently and with intent to deceive, affixes any trade-mark recorded under this act, or any such imitation thereof as is calculated to deceive, to any goods, receptacle or package similar in descriptive properties to those to which such trade-mark is appropriated; or who fraudulently and with intent to deceive places in any receptacle or package to which such trade-mark is affixed a recorded trade-mark, goods other than those which said trade-mark is designed and appropriated to protect; or who fraudulently and with intent to deceive, deals in or keeps for sale any goods with a trade-mark fraudulently affixed, as above described in this section; or any other goods contained in any package or receptacle having a lawful trade-mark, but not being such goods as said trade-mark was designed and appropriated to protect, shall be fined not more than \$500 or imprisoned not more than 50 days, or both.

Nebraska.—The law of Nebraska, digested at p. 7, is contained in the criminal code under the head of forgery, and is included with records, deeds, wills, &c. Sections 137, 138 and 139 of the criminal code also provide (§ 137) that sugar, rice, tobacco, soap, starch, candles, cheese, or any goods or articles sold by weight packed in kegs, barrels, tierces, casks, boxes, hogheads, or any case whatever, such kegs, &c., shall be marked with the weights both of the package and the contents. It also provides (§ 138) that "any brand, mark or stamp put upon any keg, barrel, box, cask, hoghead or case by the manufacturer indicating the article, its quality, quantity, or the manufacturer's name, or either of them, shall be considered the manufacturer's certified brand, stamp or mark," &c., "which shall be subject to no erasure or obliteration." Nor shall it be transferred for the purpose of refilling for the purpose of selling an inferior article.

Pennsylvania.—The party violating provisions of above sections "shall in all cases pay to the party aggrieved double in value of the difference between the actual quantity contained in such keg," &c., "and the net quantity or weight for which the same may have been sold;" and for the first offense be subject to a fine of \$20 to \$60, or imprisonment in county jail 30 to 60 days. Second and subsequent offenses—fine, \$50 to \$100, or imprisonment 30 to 90 days. (Amended, 1875.)

New Jersey.—March 11, 1881, "An act for the better protection of manufacturers and bottlers of, and dealers in mineral waters, beer, ale, porter and other beverages." It recites that manufacturers and bottlers may file in County Clerk's Office description of boxes or bottles and marks thereon, and may publish same for four weeks in newspapers of county. It is made unlawful to use, sell, buy, &c., any boxes or bottles marked or stamped and registered and published. Penalty for so doing not less than \$25 or more than \$50. It says:

"That the fact of any person or persons other than the rightful owner or owners thereof using such box or boxes, bottle or bottles, for the sale therein of any mineral water, beer, ale, porter or beverage, or any junk vendor, or dealer in bottles having secreted in or upon his, her or their premises, or any other place or places, or having in his, her or their possession unlawfully any of such boxes or bottles, shall be *prima facie* proof of the unlawful use and purchase of such box or boxes, bottle or bottles, as aforesaid."

Owners, upon belief, may make complaint of the unlawful use, &c., of their boxes or bottles before any justice. Magistrate to issue process or search warrant to bring the property or person before him. Offender to enter into recognizance in \$100 to appear at such time as the justice shall appoint for a hearing, and in default of recognizance to be committed to jail to abide the hearing. If found guilty, the justice shall render judgment against the person arrested for an amount not less than \$25, or more than \$50, and costs of proceeding, and in default of payment shall issue execution against the offender and deliver bottles and boxes into the possession of the owner.

If no person is found by constable, the boxes and bottles may be seized and delivered to the owner after summary trial.

Parties may demand trial by jury. Appeals may be had to general quarter sessions.

New York.—The new penal code, which by its terms will become a law on the first day of May 1882, contains the following sections in relation to trade-marks. Title XI.

Section 304.—A person who, in a case where provision for the punishment of the offense in not otherwise specially made by statute, with intent to defraud;

1. Falsely makes or counterfeits a trademark; or,

2. Affixes to any article of merchandise, a false or counterfeit trade-mark, knowing the same to be false or counterfeit, or the genuine trade-mark of another, without the latter's consent; or,

3. Sells, or keeps or offers for sale, goods to which is affixed a false or counterfeit trade-mark, or an imitation of a trade-mark, or the genuine trade-mark of another, without the latter's consent; or,

4. Has in his possession a counterfeit trade-mark, knowing it to be counterfeit, or a die, plate, brand, or other thing for the purpose of falsely making or counterfeiting, or causing to be counterfeited, a trademark; is guilty of a misdemeanor.

Sec. 365.—The term "article of mer-

TISCHER'S JACK.

From 5 to 30 Tons.

No Repairs, Packing or Alcohol.

NEVER RUNS DOWN.

UNDER THE LOAD.

Handier, stronger, longer lived and cheaper than any hydraulic jack.

GEO. A. OHL & CO.,

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Portable or stationary, superior to stone or brick.

Can be used with bellows or fan. Send for information to

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* Prepared by Francis Forbes, Counselor at Law, for the United States Trade Mark Association. For statutes prior to 1870 see *The Iron Age* of Dec. 15, 1870; Dec. 15, 1870; Dec. 25, 1870; April 29, 1880; May 6, 1880; May 13, 1880; May 20, 1880; June 10, 1880.

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Double
Shearing
Cut.
Solid
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Patented Sept. 14, 1880.

Family Meat Cutters are the best made.
Every family should have one. Will thoroughly cut Raw or Cooked Beef or Pork, Vegetables, Coconuts, Pine Apples, &c. Will cut forty pounds game at one cutting.

Ever Drugist should have one for cutting Roots, Vanilla Beans, &c. Easily worked. Easily cleaned. Will not get out of order. Ask your dealer for them.

Send a postal for Circular with testimonials.

Will send one as sample by express upon receipt of \$2.00.

Also Sole Manufacturers of

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The Turner and Seymour Mfg. Co. have been longer in the business and make a greater variety of **Cast Iron Scissors and Shears** than any other concern in the world. Our

"AMERICAN" SHEARS

have long been conceded to be the best ever made. The quality and finish of these goods shall always be maintained.

To meet the demand for a cheaper line we offer the trade our

"CLIPPER" SHEARS.

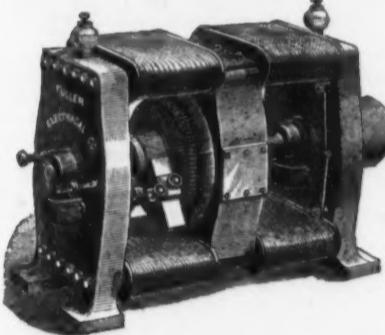
On these we cannot be undersold. Price is about 25 per cent. less than the "American."

We are now making a fine line of cheap

Nickel Plated Scissors and Shears, Nut Picks, Nut Crackers, Fruit Knives &c.

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ELECTRIC LIGHT.



THE FULLER ELECTRICAL COMPANY, having perfected their system of Electric Lighting, are prepared to furnish the Improved Gramme Dynamo Electric Machines and Electric Lamps, either for single lights or from 2 to 20 lights in one circuit.

This apparatus is unexcelled for durability, steadiness of light and economy of power, and requires less attention than any other.

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SPRING CALIPERS AND DIVIDERS

Also, Surface Gauges and Counter Sinks, Stevens' Patent breech-loading Sporting Rifles, double and single barrel; Shot Guns, Pocket Rifles, Pocket Pistols, and the noted Hunters' Pet Rifles. Our

SHOOTING GALLERY RIFLE

Is the favorite everywhere.

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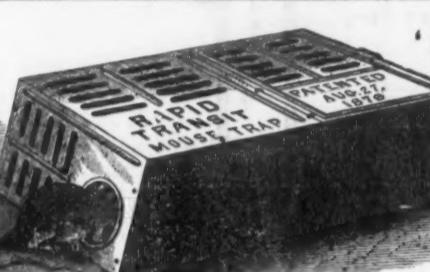
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GENUINE BABBITT,
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DEOXIDIZED BRONZE,

Superior to Phosphor Bronze or any other alloy of Copper and Tin for Machinery Journals.

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Very truly,
HENRY DISSTON & SONS.



'RAPID TRANSIT' TRAP

Has no superior, and is a sure and certain catcher of Mice. With the Metal Platform resting on wood bottom of Trap, an invitation is always extended to Mice of whatever kind, color or condition of race, into secure and grated quarters, from which they are released by opening cover of Trap and depositing contents into a pail of water.

The Mice go in at a rapid rate, And each one sets it for his mate.

Manufactured by **THE SMITH & EGGE MANUFACTURING CO., Bridgeport Conn.**

PERFORATED SHEET METALS.



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Manufacturers of **TOOL CHESTS OF ALL SIZES.**

Adapted for the use of Boys, Youths, Gentlemen, Farmers, Gardeners, Contractors, Builders, and others, and fitted up complete with a superior quality of Tools, and suited to the wants of the **Hardware, Toy, Notion and Variety trades.** Export trade solicited, and a full stock of Large Tools. We have on hand a large number of articles, and consider we think our goods will be admitted by buyers the cheapest that have yet been offered by any manufacturer in the United States or Europe. Illustrated descriptive catalogue furnished free on application with prices.

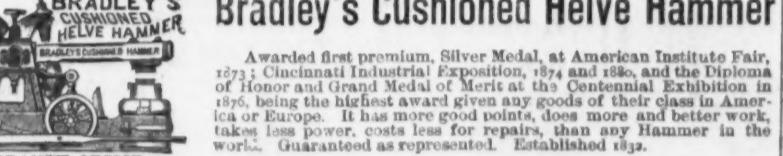
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Send for prices.

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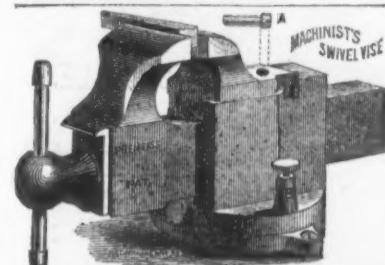
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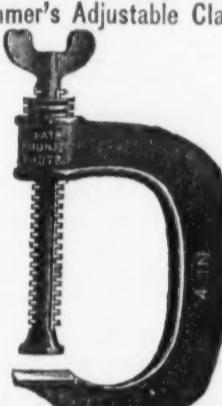
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Adjustable Jaw.
Stationary and Pat. Swivel Bottoms,
Adapted to all kinds of Vise Work.
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MALLEABLE IRON.
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NEW pattern Heavy Screw Clamps;
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Gentlemen:
You may enter
our order for
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This Curb is shipped in the Knocked Down, and can
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House, Tea, Hand,
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andria a description of such bottles and marks, and cause the same to be published for two weeks in a daily or weekly newspaper published in said city. Clerk to copy and index files. Fee, \$1.

It is made unlawful for any person, without the permission of the owner, to fill with beer, mineral water or other beverage any such bottles so marked and not bought by him of such owner. Penalty, 50 cents for each bottle so filled, &c., for first offense, and \$5 for subsequent offense, to be recovered as other fines are recovered.

(To be continued.)

LABOR AND WAGES.

The stove molders who about two weeks ago left Orr, Painter & Co.'s works, Readings, on a strike for an advance of 10 per cent., will go to work again this week, a satisfactory compromise having been effected. The number of men who struck was some 70, and since then only the apprentices have been working in the foundry. When the advance was asked, the firm, who had already fixed their schedule of prices for the fall and winter trade, and who had entered into numerous contracts for the delivery of goods at the rates determined upon, offered a concession of 5 per cent., which, however, was refused, and the molders up to yesterday adhered rigidly to their original demand. In accepting the compromise of 5 per cent., it has been reported that the molders were induced to do so with the understanding that the additional 5 per cent. would be granted at some future time. Now that Orr, Painter & Co.'s foundry will again be in full blast, operations will be prosecuted vigorously, as the firm have a great many orders to fill, and the outlook for a brisk trade was never brighter.

Three hundred workmen on the Chesapeake and Ohio Railroad on the 24th ultimo struck for an advance to \$1.50 per day, with 10 hours' work and weekly pay. New Orleans dispatches state that the strike of cotton handlers continues. A number of draymen are at work under the protection of the mounted police. No violence is reported, and but little headway is made against the strikers. Some laborers who came from outside points returned home, and those at work, knowing but little of the duties required of them, do not accomplish much. So far there are only a few hundred men employed, while the strikers number 19,000.

The laborers on the new railroad between Glen's Falls and Lake George struck recently for an increase of wages from \$1.35 to \$1.50 per day. A general strike took place at Galveston, Tex., on the 2d among several classes of working men, including longshoremen, car drivers, laborers at the oil mills, cotton pickers, &c. The demands of the longshoremen only were acceded to.

Seventy-five men employed by the New Jersey Central Railroad Company at their piers at Jersey City, struck on the 2d for 17 cents per hour. They have been receiving 15 cents.

The Cincinnati *Artisan* of the 3d inst. says: "It is very difficult to arrive at any definite conclusion as to the status of the ironworkers' strike. Both parties claim to be successful, and declare the imminent withdrawal of the other party from the contest; but the strife and strike still hold out. There has not been a more baseless and foolish strike in the history of American industry. All the indications point to the Pittsburgh iron workers as the instigators and upholders of the strike. If this is ever proved beyond the possibility of doubt, the iron mills of Cincinnati will have to understand that, besides the fair competition between fair-minded business men, that is always a factor in business, there is yet another factor, which is the disposition of ironworkers themselves to use the power of their organization to overthrow the industry of one city for the upbuilding of that of another."

Copper.

Everybody knows the weight and value of an ordinary penny-piece, and that it is principally composed of copper; so that if any one were to find a great lump of that metal in the earth, weighing 420 tons, there would be a fine fortune. Such a mass of pure native copper was found in the Minnesota mine in 1857, and it was 45 feet long, 22 feet broad and 8 feet thick. There is a piece of copper in the museum of Lisbon which came from Peru, and it weighs 616 pounds; and near Brunswick, in New Jersey, there was a thin sheet of pure copper found in the rocks which could be traced for several yards. There are some very profitable mines near Lake Superior, between Canada and the United States, which often yield 8000 tons a year of pure copper, and in 1853 a great lump of copper was found at Keweenaw Point, which weighed 200 tons, and was 40 feet in length. It contained, moreover, much silver, and when the copper was cut and polished it looked very beautiful. In most parts of the world small pieces of pure copper have been found in cracks in the hardest rocks, and man, soon after he turned his attention to a civilized life, began to use copper. Then he mixed it with tin and produced weapons of bronze, which were used for a very long period before iron was discovered. The early natives of North America, like all other, first of all used sharpened stones as their knives and spear-heads, but they soon began to make use of the yellow metal they found every now and then among the rocks. They even tried to find copper, and obtained it from the mines on Lake Superior, for the present miners come upon the old diggings while working in places where gigantic trees and dense vegetation must have existed for thousands of years. Copper is usually found combined with other substances to form an ore, and this has to be burned and run into shapes before the pure copper is obtained. It is most probable that all copper, and even the great lumps of pure native copper, were once in form of ore, or combined with other substances. Native copper is found close to rocks which are exactly like the lava and slag which are cast out of volcanoes. These rocks were forced into the earth while in a molten state, and intense heat effected the

copper ores close by. The substances combined with the copper to form the ore were destroyed by the heat, and the pure metal remained.

Trip of the Torpedo Ram Alarm.—A Washington telegram says: "The recent trip of the torpedo ram Alarm from New York to Washington, proved to be a satisfactory one in every respect. Going down to Sandy Hook the vessel made about eight knots an hour under two boilers. After running about five hours the fires began to get a little 'dirty,' and steam was gotten up in a third boiler. The ship then made about seven knots an hour. No greater speed was desired on so long a trip, as the Alarm cannot carry a very large supply of coal, not having been built for long voyages. The engines were only stopped twice between the New York Navy Yard and Blakiston Light, in the Potomac River—once to permit of communication with her convoy, the Tallapoosa, and once for the purpose of taking deep sea soundings. The Mallory steering propeller worked perfectly at all times. The weather during the trip was generally good. A thick fog, however, prevailed on Monday night, and the Alarm lost sight of her convoy several times for short periods." The Alarm will be the flag-ship at the approaching Yortown celebration.

The recent hurricane which struck the coast of Georgia and South Carolina on Saturday, 27th ult., admirably illustrated the value of the United States Signal Service, the customary warning having been bulletined several days previously. The steamers San Antonio and Juniata left port in disregard of the warning and were disabled, though the Havana steamer Newport and Cromwell's New Orleans steamers gallantly weathered the tempest, with machinery and engines intact. While it behoves commanders of steamers to be cautious, they find a firm dependence in the excellence of their propelling power.

Who is to buy the Great Eastern? This steamer, which is at present lying at Milford, is to be offered by auction in London, on the 10th of October next, by Messrs. C. W. Kellock & Co., the Admiralty brokers. Notwithstanding the recent development of modern shipbuilding, the Great Eastern still remains the largest ship ever constructed, being 679 feet long, 82 feet broad and 60 feet deep, and of 13,344 tons net register. She is popularly known in connection with the laying of the Atlantic cable in 1865, and possibly the cable companies may be looked upon as the most likely purchasers.

The *Railroad Gazette* records the construction of 191 miles of new railroad, making 3110 miles this year, against 2631 miles reported at the corresponding time in 1880, 1273 miles in 1879, 947 miles in 1878, 822 miles in 1877, 1142 miles in 1876, 574 miles in 1875, 913 miles in 1874, 1966 miles in 1873 and 3372 miles in 1872.

Special Notices.

NEW MACHINE TOOLS

FOR SALE BY

COOKE & CO.,

6 Cortlandt St., N. Y.

One Gould Engine Lathe, 26 in. swing, 12½ ft. bed.

Two New Haven Engine Lathes, 18 in. swing, 8 ft. bed.

One Prentice No. 3 Drill, 22 in. swing, back geared, power feed.

One Gould 10 in. Shaping Machine.

All of the above are new tools of the latest design, and may be seen at our store, or full particulars will be sent by mail.

COOKE & CO., 6 Cortlandt St., N. Y.

For Sale.

The Industrial Works of Shamokin, owned and successfully carried on for a number of years by late Wm. Brown, deceased, consisting of Foundry and Machine Shop, and a large stock of Pattern, Blacksmith Shop and Factory for the manufacture of heavy coal screens. Well located in the borough of Shamokin, Pa., with the best facilities for shipping by rail, and surrounded by a district contributing all the work that a shop of that kind can possibly turn out. The works are now running, but in a very short time possession can be given. Easy terms of payment are offered to suit a purchaser of limited capital.

Offered for sale by WM. McILVAINE & SONS, Reading, Pa.

Wanted—Partner.

A Mechanic with 20 years' experience making Thimbles from all kinds of metals, wishes a partner with money to go into the manufacturing of Steel, German Silver and Brass Thimbles.

Address, D. H. T., Box 734, Ansonia, Conn.

FOR SALE.

Eight H. P. Portable Holster, J. S. Mundy; 80 H. P. Horizontal Engine; new Vertical Boiler, 48 in. x 10 ft., 124 tubes; 6 x 8 Double Engine, link motion; 18-in. x 12 ft. Lathe; 3-column Drills; Root Blowers; Nos. 4 and 5; 12 x 12 Vertical Engine, extra strong build; 6 Hangers, 2 7-16; 20-inch Drop; Copper-smith Shears, Heavy Hammer, &c.

A. G. BROOKS & WINEBRENNER, 501 N. 3d St., Philadelphia.

Machine Tools.

New and second hand. Among them a 200-lb. Bradley Hammer, Pulley Lathes, Boring Table, Foundry Ladies, Engines, Pumps, &c.; also, a great variety of Patterns and Drawings. Send for circular.

WM. B. PARDEE, New Haven, Conn.

SITUATION WANTED—By a first-class blacksmith, as foreman in a locomotive or car shop.

Address, T. B. 254 Ingerson St., Philadelphia, Pa.

Special Notices.

Rolling Mill for Sale or to Lease.

The Real Estate, Machinery, Fixtures and Tools of the Ligonia Iron Company (formerly Portland Rolling Mills) are offered for sale, or will be leased to suitable lessees.

The property of the company consists of 65 acres of land at tide-water in the town of Cape Elizabeth, Cumberland Co., within ten minutes' drive of the city of Portland. Besides the mill buildings, the company owns 55 tenements in 25 buildings, one half used for church purposes, two stores and a thoroughly well-fitted office, with fire-proof vault and all modern improvements. The buildings are well-located.

The Mill contains one 10-inch train and one 18-inch train, with all the machinery appertaining for the manufacture of rails and bar iron. With a small additional outlay the machinery could be fitted for rolling steel rails from imported blooms, the capacity of the mill being about 25,000 tons per annum.

The property is provided with a thoroughly built wharf at which vessels of 800 tons capacity can be loaded at low water, and being directly connected by rail with all the railroads centering at Portland, is probably the most desirable situation for the manufacture of steel rails in New England. Address

LIGONIA IRON CO., Portland, Maine.

Portland, Maine.

New and Second-Hand MACHINERY.

One Horizontal Engine, 15% in. x 30 in. Todd & Rafferty.

One Horizontal Engine, 3 in. x 6 in.

One Beam Corliss Engine, 500 H. P.

Portable Engines from 10 to 100 H. P.

Two Horizontal Return Tub. Boilers, 100 h. p. each.

One Hor. Tubular Boiler, 6 ft x 14 ft, 67 4-in. tubes.

Two Hor. Tub. Boilers, 4½ ft x 13 ft, 43 4-in. tubes.

One Locomotive Steel Boiler, 30 h. p.

One Horizontal Engine, 15% in. x 30 in. Todd & Rafferty.

One Beam Corliss Engine, 500 H. P.

Portable Engines from 10 to 100 H. P.

Two Horizontal Return Tub. Boilers, 100 h. p. each.

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One Horizontal Engine, 15% in. x 30 in. Todd & Rafferty.

Trade Report.

Office of THE IRON AGE, I

WEDNESDAY EVENING, Sept. 7, 1881.

While the stock market has been characterized by only a moderately strong under-tonne during the week under review, in the general trade of the city there was much activity, and, in the aggregate, the amount of business transacted was large. The jobbing trade was conspicuously active. Early in the week the stock market rallied and became strong, in prospect of a better supply of money, the borrowing rate declining. Money paid out for 5% bonds began to flow into New York, and it was calculated that disbursements from the Sub-Treasury in addition, for interest and pensions, would raise the total realized from these sources to a sum approximating \$50,000,000 by the 1st of January, 1882. A further impetus was given when it became more evident that the removal of the President to Long Branch would prove beneficial rather than injurious. Wall street markets consequently closed strong. The feature of the day was an extraordinary rise in Hannibal and St. Joseph common, which jumped in the last hour to 131, some of the stock selling up to 38½%, while the highest price touched by preferred was 117. The episode was spoken of as being "the first successful 'corner' since the famous Northwest corner nine years ago." To-day, common stock is up to 200, but it is thought the operators will fall through, badly damaged.

In the freight and passenger disturbances, there is no change to record.

As the week closes, the stock market throughout is feverish.

The posted rates for bankers' sterling were advanced on Tuesday to \$4.81 for 60-day and \$4.84½ for eight, but some bankers post \$4.80½ for 60-day. The market is firm at unchanged rates.

Money on call loans at 4 @ 6%. Little commercial paper can be sold at less than 6%, while rates remain nominally as follows: 60 to 90 days' indorsed bills receivable, 5%; four months acceptances, 5 @ 6%.

The exports of domestic products from the port of New York for the week ending to-day were very large, being \$8,442,812, against \$6,733,600 last week.

Railroad bonds, as a whole, show a slight improvement, compared with one week ago.

The Custom House closes to-morrow in all the departments, excepting for two hours in the morning, to allow reports of the arrival and clearance of vessels, and business among many leading firms throughout the city will be suspended, out of respect to the proclamations of several of the State Governors appointing a day of prayer for the President.

The importations of specie and bullion at this port during the week ending Sept. 2 were \$3,913,492, consisting of \$3,793,495 in gold and \$110,997 in silver, as against a total of \$3,615,138 for the week ending Sept. 4 last year. The importations since the 1st of January and since the 1st of August compare as follows with the movement during the corresponding periods last year:

	Since January 1—	Since August 1—
Gold	\$33,850,377	\$14,365,243
Silver	2,030,816	3,672,873
Total	\$35,881,193	\$18,038,116
	—	—
Gold	\$5,286,112	\$12,390,876
Silver	276,887	478,347
Total	\$5,562,999	\$12,869,243

The weekly bank statement is favorable, as it shows a gain of \$1,547,925 in the reserve, which stands at \$1,020,100 below the conventional 25% rule, whereas on August 27 the deficiency was \$2,568,025, the change for the better being chiefly due to a further contraction in loans of over \$6,000,000.

The following is an analysis of the bank totals of this week compared with that of last week:

BEAVER FALLS CUTLERY CO.

Aug. 27. Sept. 3. Comparison.
Loans..... \$342,360,500 \$37,207,800 Dec. \$6,162,000
Specie..... 62,151,400 62,343,800 Inc. 124,400
Legal T'drs 16,210,900 15,617,900 Dec. 593,000
Tot. reserve 78,372,300 77,912,700 Dec. 400,000
Deposits..... 323,721,300 315,927,200 Dec. 7,794,100
Reserve required..... 80,090,195 78,915,800 Dec. 1,918,925
Surplus..... 2,568,025 1,000,100 Dec. 1,547,925
Circulation. 19,590,900 19,638,300 Inc. 48,800

Government bonds at the close were quoted as follows:

Bid. Asked.

U. S. 4½% 1891 registered.....	113	113½
U. S. 4½% 1891 coupon.....	113	113½
U. S. 4½% 1892 registered.....	115½	115¾
U. S. 4½% 1892 coupon.....	115½	115¾
U. S. Currency 6% 1890.....	—	—
U. S. Currency 6% 1891.....	131	—
U. S. Currency 6% 1892.....	138	—
U. S. Currency 6% 1893.....	133	—
"Sixes" continued.....	101½	—
"Fives" continued.....	101	101½

MINING STOCKS.

The following are the closing quotations for mining stocks:

Bid. Asked.

Amie.....	34	65
Alice.....	29	—
Alta Mtn.....	95	10
Bechtel.....	10	10
Bodie.....	10	10
Buckeye.....	8	9
Bull Dona.....	145	160
Boulder.....	34	34
Boston C.....	12	—
Big Pittsburgh.....	100	100
Bradwell.....	100	100
California.....	13	14
Consolidated Virginia.....	185	190
Chrysotile.....	65	65
Cent. Ariz.....	185	195
Dahlonga.....	5	6
Dun'berg.....	75	75
Eureka C.....	28,50	—
Findley.....	30	30
Granville.....	4	5

Great Shaw.....	50
Hukill.....	67
Horn Silver.....	15,50
Hibernia.....	45
Iron Silver.....	2.35
Lacrosse.....	28
Leadville.....	130
Lake City.....	2,60
L. Chief.....	130
Miner Boy.....	47
Ori and Mil.....	15
North Stan.....	80
Robinson.....	12,87½
Red Eleph.....	18
Silver Cliff.....	3.95
Suro.....	1,00
Sutro.....	2,45
St. L. 2 and 3.....	3.50
Tigora.....	45
Union Con.....	12,95
Unadilla.....	8
	9

GENERAL HARDWARE.

In accordance with the proclamation of the Governor of this State, which we print below, business, as far as practicable on such short notice, will be suspended in this city to-morrow.

EXECUTIVE CHAMBER, I
ALBANY, N. Y., Sept. 6, 1881.

For the purpose of enabling the people to unite with those of other States in petitioning the Ruler of the Universe for the restoration of health to the President of the United States, the 8th day of September inst. I hereby set apart and designate as a day of fasting and prayer, it is recommended that all ordinary avocations be suspended and the people, in their usual places of worship, humbly acknowledge their faults and reverently supplicate the mercy of the Heavenly Father that the national peril, which now appears so imminent, may be averted. Let the prayers of all be united for the early and complete recovery of the President's health and strength. May the blessing of Almighty God rest upon the stricken sufferer and the afflicted family.

Given under my hand and seal at the Capitol, in the City of Albany, this sixth day of September, in the year of our Lord one thousand eight hundred and eighty-one.

ALONZO B. CORNELL,
By the Governor—HENRY E. ABELL.

The condition of the Hardware trade is unchanged since our last writing, and the demand continues fairly active. The tone of the market is firm, and the changes in values which have transpired are few. Foreign Hardware is in fair request. Advice from Europe have been received within a few days, withdrawing quotations for German Halter and Coil Chain, and stating that, owing to advances in price of raw materials, higher range of prices will be adopted.

There is a good demand for Nails, and the tone of the market is firm. We quote 10d. to God., \$3.05 @ \$3.15, net, according to quantity.

A meeting of the manufacturers of Carriage and Wagon Axles was held at Coney Island on the 24th ultimo. The attendance was large, and after discussion relative to the position of the Iron market and price of labor, it was unanimously agreed that the price of all Axles should be discount 50 per cent. from the standard list. Terms and delivery unchanged.

We have received the following circul-

NEW YORK, September 7, 1881.

[Circular No. 1.]

To the Trade.—The undersigned hereby notify the trade that all quotations made or Skates will be withdrawn on September 15. All orders placed after that date will be subject to ruling prices, and we will not feel bound to accept orders with any reference to prices or terms heretofore made.

UNION HARDWARE CO.,
BARNEY & BERRY,
SAMUEL WINSLOW,

BEAVER FALLS, PA., Aug. 30, 1881.

To our Patrons: Owing to statements published by the Associated Press, to the effect that our works were destroyed or injured by fire on the morning of the 29th inst., we find it necessary to correct the same, and state that the fire referred to was confined to adjoining works, and while great danger, we escaped without loss, and are happy to say that we are still running and producing our usual line of superior tools, and delivery unchanged.

We have received the following circul-

LADIES IRON HANDLES, RETINNED.

NEW YORK, September 7, 1881.

[Circular No. 1.]

To the Trade.—The undersigned hereby notify the trade that all quotations made or Skates will be withdrawn on September 15. All orders placed after that date will be subject to ruling prices, and we will not feel bound to accept orders with any reference to prices or terms heretofore made.

UNION HARDWARE CO.,
BARNEY & BERRY,
SAMUEL WINSLOW,

BEAVER FALLS CUTLERY CO.

The New London Scythe Company have appointed Horace F. Sise agent for their goods in this city. He will carry a full assortment of their Scythes, &c., at his warehouse, No. 100 Chambers street, which he will offer to the trade at best factory prices and terms.

Judge Shipman has filed a decision in the office of the Clerk of the United States Circuit Court, at Hartford, Conn., in favor of Sargent & Co., of New Haven, in the suit of Hiriam Tucker against them for infringement of the Tucker patent for bronzing iron. This decision declares that Sargent's process (by which they finish their "Berlin Bronze" work) does not infringe upon the Tucker patent, and it disposes of numerous suits now pending, brought upon the same patent against the customers of Sargent & Co. in various localities.

The Stamped Ware Manufacturers' Association have just issued, under date of the 2d inst., the following revised price list. The changes adopted are advances on former figures. This list is subject to discount 55 per cent.; terms, 60 days, or 2 per cent. for cash.

The following are the present members of the Association:

LALANCE & GROSJEAN MFG. CO.
UNITED STATES STAMPING CO.
JAMES AIKMAN & CO.
E. KETCHAM & CO.
ST. LOUIS STAMPING CO.
F. HABERMAN.
SIDNEY SHEPARD & CO.

DOVER STAMPING CO.	
ADAMS & WESTLAKE MFG. CO.	
BARON MFG. CO.	
IRON CLAD MFG. CO.	
STANDARD TINWARE CO.	
W.M. VOGEL.	
C. B. PORTER & CO.	
KEEN & HAGERTY.	
GEO. BOOTH & CO.	
MATTHAI, INGRAM & CO.	
BENHAM & STOUTENBOROUGH.	
J. HALL ROHRMAN & SON.	
DETROIT STAMPING CO.	

MANUAL LIST AS REVISED SEPT. 2, 1881.

DEEP STAMPED WARE.

Biscuit Pans, Retinned.	Nos.
Per doz.	\$4.45
Bread Pans, Handled, Retinned.	Nos.
Per doz.	\$2.25
Colanders, Retinned, with feet loose.	Nos.
Per doz.	\$2.63
Cake Pans, Tubed, Retinned.	Nos.
Per doz.	\$1.50
Cups, I. C. Plain.	Nos.
Per doz.	\$0.90
Cups, I. C., Retinned.	Nos.
Per doz.	\$1.35
Cups, Retinned.	Nos.
Per doz.	\$1.11
Dinner Pans, Retinned.</	

ficient to absorb the arrivals, and we do not hear of any Iron going into store. We quote Eglinton, \$21; Carnbroe, \$22.50; Coltness, 23.50 @ \$24; Glengarnock, \$22.50 @ \$23, and Gartshill, \$23.

Rails.—No new business either in Steel or Iron Rail has come to our notice during the week. We quote Steel at mill (1882 delivery), \$55 @ \$56, and Iron Rails, \$48 @ \$49.

Old Rails.—Sales are reported of 2000 tons T's at \$27.50. The demand is fair, and the tone of the market strong at \$27.50 @ \$28 for T's, and about \$30 for Double Heads.

Scrap.—There is considerable inquiry on the market for Wrought Scrap, but the sales reported have only been in small lots. We quote No. 1 Wrought, \$27.50, ex ship, and \$30, from yard, for prime Selected.

Mr. Seth Wilks, of the old firm of James Williamson & Co., died suddenly on Saturday last, at his summer residence, at Nyack on the Hudson. The funeral took place today.

METALS.

Copper.—Sales for the week have been restricted to about 200,000 pounds Lake Superior at 16% @ 17¢, the latter being the asking figures at the close. Baltimore is worth as much. Manufacturers are well stocked with the raw material, but the demand for their goods is brisk all along. London cables Chili Bars, £59.10/ and Best Selected, £65.10. "London, Aug. 27.—This market is strong, and during the last day or two better prices have been realized for Chili Bars, which may be accounted for by advices giving light charters for the last half of this month, there being only 700 tons advised, combined also with reports showing that higher prices are ruling at Valparaiso, there being an advance of 10¢ per ton. This market, which has remained in such a depressed condition for so long a period, owing to the heavy stocks, does certainly appear as though it is assuming a much better position, and from time to time is being greatly relieved, chiefly by the continued limited supplies from Chili, and although from other sources supplies are still maintained, yet the last statistics have shown that the reduced production in Chili has been sufficient to make some satisfactory impression upon the public stocks here, and if deliveries are upheld at their present average, there seems good cause to anticipate that a much higher range of prices will shortly be established, while the position of holders of Chili Bars is thereby greatly improved." Manufacturers are quoted as under: Pit and Hot-rolled Flat Bottoms, 27¢ per pound; Cold-rolled Flat Bottoms and Pit Bottoms, with flange cut, 28¢; Braziers, 26¢ @ 32¢, as to size and weight; Circles, 29¢ @ 32¢; Sheets, 26¢ @ 29¢; Sheathing, 24¢, and Bolt Copper.

Tin.—About 100 tons Straits have been sold during the week wholesale, at 20¢ @ 21¢. Our market rules firm, with an upward tendency. London cables Straits Tin £91, cash, on the spot, and calls the market active, with an upward tendency. Singapore is unchanged at \$28.75 per picul. Exchange there has advanced in sympathy with silver in London to 3/4%. We quote at the close large lines: Straits, 21¢ @ 21½¢; Australian, 21½¢; Billiton, 21¢; and English Common, 21½¢.

The following statistics of Tin have been prepared by M. Charles Nordhaus, New York, September 2:

STATISTICS OF TIN AUGUST 1.

August 1—Stock in United States in first and second hands..... 2,180
August 1 to 31—Arrivals in United States..... 700

Total..... 2,180
August 1 to 31—Consumption in United States..... 580

September 1—Stock in United States in first and second hands..... 2,000

STRAITS TIN AFLOAT.

May 28—Sailed, Centaur, for Boston, due September 28..... 50
June 13—Sailed, L. Schiller, for New York, October 13..... 120
June 13—Sailed, Mercury, for New York, due October 20..... 50
July 8—Sailed, Carleton, for Boston, due November 8..... 50
July 10—Sailed, N. Gibson, for Boston, due November 10..... 50
August 12—Sailed, Minet, for New York, due December 12..... 30—410
July 12—Sailed—Steamer for New York, due September 10..... 100
July 16 to 31—Steamers for New York, due September—October..... 200
August 1 to 15—Steamers for New York, due September—October..... 400
August 16 to 31—Steamers for New York, due October—November..... 370
Australian and Billiton, October—November..... 450

Total stock and visible supply (equal to about four months fall consumption)..... 3,930

Shipments Cons. n.

August..... Tons.
Straits to United States..... 800
Straits to England..... 1,300
Australia to England..... 1,100
Holland..... 700
Java to Holland..... 250

Total..... 2,150
2,900

"London, Aug. 27.—There is still a large business doing in this metal, but prices are rather weaker, the market having been somewhat affected by the rise in the bank rate. This is not surprising, for owing to this metal being speculated in so largely, any chance arising of loans not being able to be made upon equally favorable terms as of late, necessarily checks business and causes sales among weak holders. But beyond what little adverse influence is thereby created, there does not appear any cause for despondency as regards the future course of the market, because what little contrary effect is thereby made can be only of temporary duration, the ultimate position of the market being necessarily influenced by the question of supply and demand."

Tin Plates.—There has been a most active jobbing demand at New York during the week, but no speculative energy seems to develop, competition among sellers being very great, facilitated by the cable. The market, on the whole, is quiet, but firm toward the close at the ensuing quotations for large lots, ordinary brands, per box:

Charcoal Bright, \$5.75 @ \$5.87½; ditto Terne, \$5.25 @ \$5.37½; Coke Tin, \$5.10 @ \$5.12½; and ditto Terne, \$5 @ \$5.06½. People at Liverpool seem to be sanguine of higher prices, this hope being based upon the great decrease in stocks at that point, claimed to be only 50% of what they were six weeks since. The feeling there is a strong and confident one. They quote Coke Tin, per cable, 15/6 @ 16/.

Lead.—Sales for the week have been limited to 200 to 300 tons at \$4.95, and a few small jobbing lots as high as 5¢. There is at present quite a Lead famine here, and at Newark little can be got, orders being about 30% ahead of available stuff. The position of Lead is so favorable and so sensitive to anything that can be construed to give it a further lift, that an advancing London market would at once start a corresponding improvement on this side, and cause common Lead here to rise to 5½¢ @ 5¾¢ probably. Should the market permanently attain higher figure on this side, it would, on the other hand, invite importation again, the effect of which would be detrimental to the general run of trade here, for 2000 tons of European Lead would suffice to cause months of stagnation among us. Consumption of Lead seems to be unusually active just now, not only in this country, but equally as much in Europe. There is no Lead on the way now from San Francisco unsold. No Refined is offering; the last sale was made at 5¾¢. "London, August 27.—Only a moderate business continues to be transacted in this metal; nevertheless prices continue strong, while in some cases a further rise has been made. Manufacturers are quoted as follows: Sheet Lead, 7½¢; Lead Pipe, 7¢; Tin-lined ditto, 15¢; Block Tin ditto, 35¢; Drop Shot, 7¢.

Spelter and Zinc.—Domestic Spelter remains dull and nominal at 5¢ @ 5½¢, and Silesian, in which nothing transpires, at 5½¢ @ 5¾¢. "London, Aug. 27.—Ordinary brands are still quoted at £15.10/ @ £15.15. The tone of the market is, however, quieter than it was, with less demand and more readiness to meet it."

Antimony.—The demand during the week has been fair, at 15¢ for Cookson's brand and 14½¢ for Hallett's.

OLD METALS, PAPER STOCK, &c.

The purchasing prices offered by dealers are as follows:

Copper, heavy..... \$ D. \$0.14 @ \$0.15
Copper Bottoms..... 12 @ .13
Yellow Metal..... .05% @ .09
Brass, heavy..... 11 @ .11½
Brass, light..... 10 @ .10½
Copper, heavy..... 12 @ .12½
Lead, heavy..... 11 @ .11½
Lead, light..... 10 @ .10½
Tin..... 10 @ .10½
Zinc..... 10 @ .10½
Pewter, No. 1..... 13 @ .13½
Pewter, No. 2..... 10 @ .09
Wrought Iron..... ton..... 23.00 @ 24.00
Light do..... 11.00 @ 12.00
Flat do..... 12.00 @ 13.00
Machinery do..... 15.00 @ 15.50
Grate Bars..... 3.00 @ 6.00

The prices current (prices paid by local dealers) for Rags, &c., are as follows:

Canvas, Linen..... \$ D. 3½% @ 4 C.
White Cotton, New..... 2½% @ 3 C.
" No. 2..... 2½% @ 3 C.
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Seconds..... 1 C. @ 1½ C.
Soft Woollens..... 0½% @ 1 C.
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Kentucky Bagging..... 1½% @ 2 C.
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the German and Belgian manufacturers, who are selling at Sydney, Melbourne and Adelaide at prices 10 per cent. under our own, and 20 per cent. under American figures. I believe Felten & Guillaume, of Cologne, now do a larger business with the Australian Colonies in barbed and ordinary fencing wire than any other firm—English, foreign or American. In tin plates there would appear to be a little movement, and a slight recovery in prices.

SCOTCH PIG IRON.

The Glasgow iron market has been very quiet of late, with a minimum amount of business in the "ring," small legitimate purchases, and gradually drooping prices. Many of the principal operators a speculative way, as well as the majority of the shippers and merchants, are now out of town for their holidays, which may possibly be sufficient to account for some portion of the current lethargy. A few furnaces have been stopped during the week, the number now in blast in Scotland being 111, as against 124 this date last year, when labor troubles were on hand. Stocks increase, as of old. Over 1700 tons were added to Connal's stock last week, the quantity held being now 575,936 tons, as compared with 460,331 tons a year ago, and 495,580 tons at Christmas last. The aggregate shipments to date have decreased 105,190 tons—last week's falling off being 2922 tons. Imports of Middlesboro' Pig have increased 32,476 tons to date. Ballast Pig is quoted 42/6 alongside ship. Writing from Glasgow, Aug. 19, James Watson & Co. said: "We have no improvement to report this week in the Scotch Iron trade, the demand being limited and even speculatively there is little doing. On Monday a moderate business was done in Warrants from 46/5 @ 46/3, cash, and on Tuesday transactions took place from 46/4 @ 46/2½ per ton. On Wednesday the price further declined from 46/3 @ 46/ cash, and yesterday a limited business was done from 46/1 @ 46/2½, cash. To-day the market was idle, and to 211 (or 26 per cent.) in the year 1880, notwithstanding the general decrease of insolvency."

Lord Sherbrook, better known under his former style of Mr. Robert Lowe, has recently written an article advocating the total abolition of bankruptcy laws. His views have been received with some incredulity, but if we are to believe the controller, these laws are really unnecessary, for he tells us that there exists a class of accountants who make arrangements between debtors and creditors, and have a fund from which compositions may be guaranteed, and the debtors enabled to continue their business. He also shows that compositions (instead of bankruptcy) are largely preferred, seeing that 375 cases of that kind were registered last year, 205 being under 2/6 in the pound. During the last five years the average losses from insolvencies have been £20,000,000 per annum, in some years reaching as high as £25,000,000.

CLEVELAND IRON

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	No. 1	No. 3.
G. M. B., at Glasgow	47/	44/0
Gartcierrie, at Glasgow	54/3	48/2
Clydesdale	55/2	48/2
Summerlee,	55/3	47/
Langloan	56/	49/
Carnbroe,	53/	46/
Calder,	54/3	48/6
Glengarnock, at Ardrossan	51/	46/
Eglinton,	47/	43/6
Darnallington,	47/	43/6
Shotton, at Leith	56/	48/6
Kinnel, at Bo'ness	47/6	45/6
Carren, at Grangemouth	48/6	45/6

No. 1.

No. 3.

FOREIGN.

(Monteur des Intérêts Matériels.)

PARIS, Aug. 21, 1881.—Metals.—Crop prospects in France are favorable, as the prices there were a month ago, but this change does not seem to affect business, at least not in the Metal and Iron branch, both of which continue active. Copper and Spelter have improved, Tin has declined and Spelter has remained steady since our last report. We quote at the close: Copper.—Chile Bars, 156.25 @ 150.75; Ingots & Slabs, 165.75; Bars, 156.25 @ 150.75; Copper Corocoro Ore, 15.75. Tin.—Banco and English Refining Co., 15.75. Zinc.—Banco and English Refining Co., 15.75. Lead, 17 @ 18; and Spelter, 41.75 @ 42.50. Iron.—Everything has continued to go on smoothly in the interior during the week under review; prices there have now firmly established at the recent advance, but in this city there has been hesitation and partial withdrawal brought about by eagerness to sell manifested by some wholesale dealers, perhaps for purely financial reasons. Nor is there any indication that there will be much of a change at Paris for some weeks to come, for contractors have secured for months at the time ruling lower prices all they stand in need of for building, causing structural Iron to fall in late. After a short interval, market influences will undergo a favorable change, in due course our market may then resume its wonted activity. The Northern rolling mills are on the point of raising Merchant Iron to 15.00 francs. Coal.—The market is moderately active; the City Hall here paid for its Coal just now 36.95 francs, against 36.25 a year since.

BELGIUM.

(Revue Universelle.)

BRUSSELS, Aug. 21, 1881.—Iron.—The Iron market has been steadily tending upward. Orders are received in large lines, especially from France, where the demand for Iron extends to all branches of the metal. The market is in an unprecedented manner. The only thing calculated upon some surprise is that at public adjudication, the price at which Iron is tendered is comparatively speaking low; indeed, remarkably so. The price of 13 francs for Merchant Iron is now currently accepted in Belgium in large lines. Charleroi has meanwhile raised the price of No. 2 to 18 francs, No. 3 to 20, and No. 4 extra to 28. The immediate outlook does not seem to be safe enough, for we have successfully weathered the first half of the year and approach its most active season. Of course, the situation would be still better if the general crop prospect in Western Europe had remained what it was but a short time ago, and if the gold drain had not recommended, causing the discount to rise and holding in check the speculators. But then there lie disappointments cannot materially affect the general position of Iron on the Continent, which has become a strong one in this country, Germany and Austria, without taking into consideration the activity in France, which has hardly ever been slackened for a year past. Coal also continues lively and very firm; more so than is usually the case at this time of the year, and it has an encouraging look about it.

GERMANY.

(Borsenblatt.)

HAMBURG, Aug. 22, 1881.—Iron.—Our Dortmund correspondent writes yesterday: "The general aspect has remained about the same as last week. As for Spiegeleisen, it has advanced to 72 @ 75 marks per ton, in contrast to larger orders just received from England, the bulk of which bear for American account. Great Pig Iron has not varied from 56 @ 58 for No. 1, but the Siegen Blast Furnace ask a couple of marks above this figure, and now quote it 60 marks, while the Nassau Blast Furnace, not as favorably situated, still sell theirs at 51 @ 53. Of this kind of Pig the sale is most extensive, for Dortmund Pig is ruled as it is by Scotch and English quality, and has advanced no further than 11 marks for No. 1. Nor has there been any improvement in German Bessemer Pig, despite the great demand; this species also being controlled by the price of English Bessemer Hematite, the latter being quoted 56 @ 57 marks per ton of shipment, and the former 67 @ 70 at the furnaces. Our rolling mills have received further important orders, so much so that they have had no time to last them for the next three months. Prices have become firmer, but this does not prevent a slight shading below the basis of 118 @ 120 in isolated cases. As for Structural Iron it may be mentioned that pillars and corners both for houses and steam-

ships are most in demand. But the most active demand runs upon thick sheets for boilers for steam and locomotives, the latter being shipped in less request. The former may be quoted to 66 for No. 1, and the latter, 170. Bar Iron has an upward tendency, and for draw-wire some larger orders have lately been received from abroad. In all these articles the rolling mills are at present well provided with commands specially for the Baltic provinces and Russia, and very busy in turn. The port of Hamburg is the most important, and the latter, 170. Important orders have, moreover, been received for Steel Rails. An advance is looked forward to in the near future. Steel Ingots are wanted most urgently, both for Steel wire and tools. One Dortmund concern has an order for several thousand tons of Ingots. Some of the Structural Iron concern will be glad to receive commands from America, as the market is the same. The steam-boiler shop of the machine builders and founders are most of them very busy. Tools and hardware are quite active, particularly for export. Coal.—The favorable position of this fuel remains unaltered. There is great animation, both in Coal and Coke for manufacturing purposes." In the Moselle and Sarre region also in Luxembourg, Upper Silesia seems to be improving. In Upper Silesia there are several concerns which are most of them very busy. Tools and hardware are quite active, particularly for export. Coal.—The favorable position of this fuel remains unaltered. There is great animation, both in Coal and Coke for manufacturing purposes." In the Moselle and Sarre region also in Luxembourg, Upper Silesia seems to be improving. The rolling mills have agreed not to sell any more for less than 11 marks as a basis. All puddlers and rollers of the Upper Silesian Company have struck for higher wages. Metals are inactive. Lead is quiet at 16 @ 17.50. Copper is quiet and unaltered at 66 @ 75. Tin is firm at 98 @ 100, and Spelter without any thing doing at 13.75 @ 16.

Bankruptcy, issued last week, however, shows that we had fewer failures last year than for some time before. In 1880 there were 10,293, as against 13,132 in 1879. The liabilities were £16,188,636 in 1880, against £29,678,193 in 1879, and the assets, £4,701,504, compared with £10,103,617. This is the first important decrease in 19 years, and is a circumstance worthy of some attention, as tending to prove either a better state of trade or greater care in trading last year. The controller remarks: "The annual number of bankruptcies proper has fallen or risen consistently with the rise or fall of exports and imports, and the same with compositions exceeding 7/6 in the pound, except that they have shown rather more tendency to decrease than increase, caused, no doubt, in many cases, by growing appreciation that smaller compositions could be carried as easily as larger ones. The annual number of compositions between 1/ and 7/6 in the pound rose steadily, without one fall, from 975 in the year 1870 to 3240 in the year 1879, while the worst composition, not exceeding 1/6, and averaging a few pence in the pound, rose from 76 to 739 in six years, when their increasing being checked by a decision of the London Bankruptcy Court, the number of these compositions fell to 610, rising again, however, to 1056 in the year 1879. * * * In London the number of these compositions in pence, rose from 18 (or 6 per cent. of the whole number of London compositions) in the year 1870, to 156 (or 25 per cent.) in the year 1873, and 216 (or 30 per cent.) in the year 1876, when the before-mentioned decision of the London Court, preventing the registration of resolutions for compositions offered without security or probably of payment, and clearly in the interest of debtors and not of creditors, reduced their number to 107 (or 18 per cent.) in 1877. I believe that means of evading that decision have been discovered; at any rate the number of these compositions again rose to 185 (or 21 per cent.) in 1879, and to 211 (or 26 per cent.) in the year 1880, notwithstanding the general decrease of insolvency."

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DRILL BRACE.

This is a 10-inch sweep Brace, with a gear-wheel speeded about three to one, to be used for drilling and also for boring in places where there is not room to revolve the Brace Sweep. By an ingenious device the large gear wheel can be put on at three different angles with the Brace Sweep, adapting it for use in narrow or cramped places. When not needed the gear wheel can be removed in one second, leaving a plain Brace. This Brace is made of steel, and is heavily nickel-plated, with rosewood handle and lignumvitae head. The jaws are of forged steel and will center and hold firmly Round Twist Drills from $\frac{1}{8}$ to $\frac{7}{16}$ of an inch in diameter. Also, Square Shank Bits and Drills of all sizes. Also, Square and Flat Screw Driver Bits. In fact, it will hold perfectly tool shanks of any size or shape. There is no other chuck in existence which will do this. It is our purpose to furnish everything in the line of Bit Braces and Breast and Hand Drills of a style and quality superior to anything else in the market.

Price of Drill Braces per dozen, \$36.

Same discount as Breast Drills.

MILLERS FALLS COMPANY,
74 Chambers Street, New York.

HEATON & DENCKLA HARDWARE CO.,
Hardware Commission Merchants,
507 Commerce Street, Philadelphia.

R. & G. BROOKE'S "Anchor Brand" Nails, Brads, Spikes, &c.
MALLORY, WHEELER & CO.'S Door and Pad Locks.
UNION MANUFACTURING CO.'S Butts.
AMERICAN SCREW CO.'S Screws.
D. R. BARTON TOOL CO.'S Edge Tools, &c.
FRANCE'S Shutter Holders.
Anti-Wind Rattlers, Brass and Nickel-Plated.
WESTERN FILE CO.'S Cast-Steel Files.
AMERICAN SHEAR CO.'S Shears and Scissors.
H. P. NAIL COMPANY'S Wire, Steel, Iron and Brass Nails and Barbed Nails.
STEEL & SONS' Wrought Handle Sad Irons

Also a large line of Heavy and Shelf Hardware.

VARIETY IRON WORKS.
KYSER & REX,
Manufacturers of
Hardware Specialties, Iron Toys, Novelties and Housefurnishing Hardware,
Main Office and Factory, Trenton Ave. and Margaretta St., Frankford, Philadelphia.
Branch Office, 19 & 21 S. 4th St., Phila. Hardware specialties manufactured to order.

MORSE TWIST DRILL AND MACHINE CO.

NEW BEDFORD, MASS., Sole Manufacturers of

Morse Patent Straight-Lip Increase Twist Drill,
Beach's Patent Self-Centering Chuck, Solid and Shell Reamers,
BIT STOCK DRILLS,

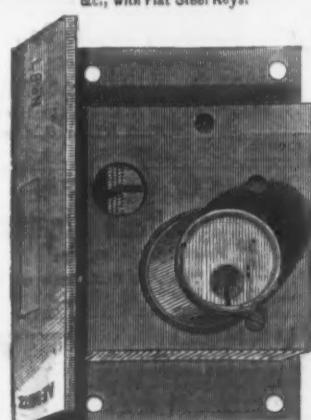
DRILLS FOR COES, WORCESTER, HUNTER AND OTHER HAND DRILL PRESSES. BEACH'S PATENT SELF-CENTERING CHUCKS, CENTER AND ADJUSTABLE DRILL CHUCKS, SOLID AND SHELL REAMERS. DRILL GRINDING MACHINES. TAPER REAMERS, MILLING CUTTERS AND SPECIAL TOOLS TO ORDER.

All Tools exact to Whitworth Standard Gauges.

GEO. R. STETSON, Supt.

EDWARD S. TABER, Treas.

A. E. DIETZ,
(Successor to Barnes & Dietz.)
Manufacturer of
Steel Door Locks, Night Latches, Padlocks, Drawer Locks, &c., with Flat Steel Keys.



Durrie & McCarty, Agents,
97 Chambers & 81 Reade Sts., New York.



THOMAS S. SMITH,
Perforating Iron, Steel, Brass & Zinc
For all their various uses.
Screens for Ores and Coals, Wheat, Corn and Smut.
Also, Malt Kilns, Coffee Roasters, &c. All sizes of
Nuts, Washers and Chain Links and General Blacksmithing.
137 & 139 E. Pearl St.,
Send for Price List
CINCINNATI, O.

PRIZE MEDALLISTS:

Exhibitions of 1862, 1865, 1867, 1872, 1873, and only award and medal for Noiseless Steel Shutters at Philadelphia, 1876; Paris, 1878, and Melbourne, 1880.

CLARK, BUNNELL & CO., LIMITED.
Late CLARK & COMPANY, Original Inventors and Sole Patentees of Noiseless Self-Coiling Revolving STEEL SHUTTERS, FIRE AND BURGLAR PROOF. ALSO IMPROVED ROLLING WOOD SHUTTERS, Of various kinds. And Patent METALLIC VENETIAN BLINDS.

Endorsed by the Leading Architects of the World. Send for Catalogue.

Office and Manufactory,
162 & 164 West 27th St., N. Y.

HUBBELL'S PATENT METAL CORNERS FOR OIL CLOTH, WITH BINDING TO MATCH.
Protect them from wearing and are ornamental. These goods need only be seen by the public; the real merits are at once appreciated. Sample orders solicited and circulars sent on application.

RAY HUBBELL, Patented and Sole Manuf'r in U. S. and Canada,
Northville, Fulton Co., N. Y.

R. D. WOOD & CO., Philadelphia, Manufacturers of
Cast Iron Pipe FOR WATER AND GAS,
Lamp Posts, Valves, &c., Mathew's Pat. Anti-Freezing Hydrants.
400 CHESTNUT STREET.

THE PERFECT DOOR SPRING. [Patent Applied for.]
Coats less, and surpasses in Simplicity Durability and Perfection all other contrivances for Closing Doors.
Send for explanatory Circular and Price List.

The Perfect Door Spring Mfg. Co., Sole Manufacturers,
328 Seventh Ave., New York.

STAR LOCK WORKS. ESTABLISHED 1836.

Trunk Locks, Door Springs, Pad Locks, Trunk Stays, Dead Latches, Keys, &c., &c.
220 South 8th St., and Sansom, betw. 8th and 9th, PHILADELPHIA.

Scand. Pad Locks With Flat Keys. Shackel secured to the Lock Box.

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No. 35
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BROWNING, SISUM & CO., 85 Chambers St.,
Manufacture
Belt Hooks, Cotters, Spring Keys, D Rings, Staples, and everything pertaining to wire bending.
Brooklyn.

L. COES'

Genuine and Mechanics

PATENT**Screw Wrenches**

MANUFACTURED BY

L. COES & CO.,

Worcester, Mass.

ESTABLISHED IN 1839.



Our Genuine Wrenches are made with straight bars, full width and enlarged jaw, having ribs cast inside, which strengthens the jaw and give a full bearing on front of bar. These improvements, in combination with our ferrule, make with double jaws an iron tube fitted to the shank and resting against the lower bearings, rigidly held in position by the handle and nut, effectively preventing back thrust of ferrule (see sectional view), verify our claim that we manufacture the heaviest and strongest Wrench in the market. None genuine unless stamped

L. COES & CO., Worcester, Mass.

Warehouse,

97 Chambers and 81 Reade Sts., NEW YORK.

DURRIE & McCARTY,

Sole Agents.

The 1881 Pennsylvania Lawn Mower.

OUTSTRIPS ALL COMPETITORS. PREMIUMS TAKEN OVER ALL OTHER MOWERS.

EVERY MACHINE WARRANTED TO WORK AS REPRESENTED.

**PENNSYLVANIA LAWN MOWER**

YOU WILL

Save \$2 to \$3 each year in expense of Sharpening and other Repairs.

Can Cut Grass Immediately After Rain.

Make 10, 12, 14, 15, 16, 17, 18-inch Hand Mowers, and 30-inch Horse Lawn Mower. Both Hand and Horse Mower will cut higher grass than any other Mower manufactured.

Also Manufacture the BEST 10-INCH FORWARD CUT LAWN MOWER in the MARKET, named "QUAKER CITY."

For descriptive catalogue and prices write:
LLOYD, SUPPLEE & WALTON, Philadelphia.
DURRIE & McCARTY, New York.
AMES PLOW CO., Boston, Mass.

J. P. COOPER, New York.
SIMMONS HARDWARE CO., St. Louis, Mo.
HAMILTON & MATHEWS, Rochester, N. Y.
MARKLEY, ALLING & CO., Chicago, Ill.
DUCHARME, FLETCHER & CO., Detroit, Mich.

LOCKWOOD, VAN DOORN & TAYLOR, Cleveland, O.
ANDERSON HARDWARE CO., Indianapolis, Ind.
W. W. COOPER, Appleton, Wis.
G. W. HOUSE, Peoria, Ill.
LLOYD & CLARKE, La Crosse, Wis.
T. M. CLARKE & CO., Atlanta, Ga.
G. L. FARWELL, St. Paul, Minn.
L. C. DESSAINT & SONS, Davenport, Iowa.

CHAMPLAIN Forged Horse Nails.

MANUFACTURED BY THE

NATIONAL HORSE NAIL CO., Vergennes, Vermont.

HOT FORGED AND COLD HAMMERED POINTED MADE OF BEST NORWAY IRON AND WARRANTED.

A full line of "CHAMPLAIN" and "NATIONAL" Nails always on hand at our Warehouse,

97 CHAMBERS AND 81 READE STREETS, NEW YORK.

DURRIE & McCARTY Sole Agents.

NEW LINE.

WITH SHELL EJECTOR
20, 32, 38 and 44 Cal.
Pocket, Police, Navy and Army Sizes.
Also, Double and Single Shot Guns.
Rifles, Cartridges, Shells, Bullets,
Primers, Loading Implements,
&c., &c.

Send for reduced catalogue and discounts of goods manufactured by
E. REMINGTON & SONS, NEW YORK.
283 Broadway,

MOORE'S HOIST

For Description Write

PENFIELD BLOCK CO., LOCKPORT, N. Y.

N. B.—One man can raise 600 lbs. with ease, and lower same at any desired speed, and by use of brake suspend load at pleasure. Adapted to the wants of merchants, manufacturers, railroads and farmers.

HENRY B. NEWHALL,

105 Chambers Street,

NEW YORK AGENT.

S. H. & E. Y. MOORE,

163 & 165 Lake Street,

CHICAGO AGENTS.

PITTSBURGH AND VICINITY.

The new rail mill of Messrs. Carnegie, Sloane & Co., which has been erected at Homestead, will be put in operation this week. It will be used for the manufacture of steel rails. Many of the best men employed heretofore at the Superior Rail Mill will go to work in the new mill.

Those iron mills which derive their water supply from the Monongahela River are experiencing great inconvenience on account of the very low water.

Work will be resumed this week in the window glass factories of the Pittsburgh district, after a stoppage of three months. The resumption takes place under the most favorable circumstances.

Wm. McCully & Co. will start their new prescription house, on Twenty-eighth street, on September 1. Both furnaces are fired up, one to start blowing on September 1 and the other on September 5.

Wightman's glass factories, in the Thirty-sixth ward, will resume work on Thursday. Both factories have been thoroughly overhauled and repaired.

A. Garrison & Co., of this city, are engaged upon the manufacture of a train of rolls for the new iron mill at Pueblo, Colorado, the first iron mill in that State. All the roll makers in this city are overwhelmed with orders for rolls and their appurtenances.

The Pittsburgh Locomotive Works are running double turn on large orders from Western railroads.

The Connellsburg Coke Company is shipping ten carloads of coke per day to California, via the Union Pacific Railroad.

The flint bottle house of Agnew & Co. have about completed their repairs and improvements at Hulton Station, and were to commence operations on Monday, September 5. The outlook is very favorable.

Six new lathes of an improved pattern were set up in the machine shops of the American Iron Works yesterday. Owing to the press of orders the men in this department of the mill are working 13 hours a day.

Work on the large new plate and sheet mill of Moorhead & Co., at Soho, is progressing rapidly. The fly wheels and rolls are in position and other work is being pushed rapidly.

The Dithridge Chimney Company have removed all their chimney-making apparatus from their factory at the foot of Seventeenth street to the co-operative factory at Phillipsburg, P. & L. E. R. R. The reason assigned for the change is that taxes are lower and material cheaper at Phillipsburg than in this city.

OHIO.

The Farmers' Friend Grain Drill Manufacturing, at Dayton, caught fire on the 1st inst. The fire was discovered in the paint room, and the entire fire department was called out. At midnight the flames were under control, and the loss is variously estimated at from \$30,000 to \$35,000. The building was stocked with materials. It is one of the largest drill manufacturers in the United States, employing 200 men, who have been working day and night. The fire was confined to the third and fourth stories, and the damage may prove smaller than now estimated. Insured for \$10,000.

The Hagerstown Agricultural Implement Company have sold out to a company in Newark, where the business will hereafter be carried on.

Vernon Furnace is running very evenly, making 12 to 14 tons choice car-wheel iron daily.

Hech and Howard furnaces have stopped running on account of scarcity of water.

It is expected that Youngstown will shortly have another rolling mill. A party of citizens, among whom are George James, Oliver William and Adam Summers, all skilled in the manufacture of sheet iron and heavy plated iron, have been engaged in making arrangements for the building of the mill. Several capitalists in Niles heard of it, and made a proposition for them to locate it in Niles. It is thought, however, that the mill will be located here. The gentlemen named will manage the mechanical part of the business. The works will be located on the McCurdy farm. The new concern will be known by the name of Summers Bros. & Co. —*Pittsburgh Dispatch*.

Alice Furnace will probably be banked in a few days to await a rise in the river, as the present shipping facilities will not put the iron in the market fast enough, and they do not wish to accumulate stock.

ILLINOIS.

A 15-pot glass factory is building in Ottawa, to be operated by a number of workmen from Pittsburgh, who have been looking for a location in the West for some time.

Chas. F. Elmes, manufacturer of coal-mining machinery, Chicago, has on hand a large number of contracts which will keep his establishment in operation to its full capacity for the next six months.

The Thorn Wire Hedge Co., Chicago, manufacturers of the Kelly steel barb wire, are building six more automatic barbing machines, to be used in their works.

Sherman & Marsh, proprietors of the Lyman Manufacturing Co., Grand Crossing, have had their limit increased 1000 tons a year. They are employing 60 hands in their works, which are run on full time, and now turn out 400 tons of barb wire a month.

The Payson Manufacturing Co., Chicago, have for the past two weeks been running their works extra hours, turning out sash locks and casters. They are employing 26 men.

TENNESSEE.

Work on the Warner Furnace, Hickman County, is progressing rapidly. Large quantities of coal and ore are in readiness, and the furnace will be put in blast early in November.

The new car-wheel foundry at Knoxville, with Col. A. L. Maxwell at the head, will begin operations in a short time.

GEORGIA.

The Georgia Iron Works are running full time with a crew of negro workmen, who are doing good work. The concern has plenty of orders.

The machinery of the car factory at Cartersville has been put in working order,

and the concern is now about ready for business.

The Columbus machine shops are building two locomotives for the Central and one for the Mobile and Girard Railroad.

KENTUCKY.

All departments of the Norton Iron Works are now in full blast, making the usual amount of pig iron and nails. Shipments of nails are now being made almost exclusively by rail, some two or three carloads being shipped daily.

The Ashland Furnace still continues in splendid working condition, and has been putting out over 50 tons of iron per day, using, as formerly, raw coal as fuel.

MISSOURI.

We clip the following from the *Age of Steel*: The Standard Tool Company are erecting, as an addition to their works on Soulard street, a \$1000 iron-clad forge shop. The rolling mills of the St. Louis Stamping Company, having been thoroughly overhauled, have again been put in operation. The Mississippi, the St. Louis and the Lincoln Glass Works were to have resumed work on Thursday after their usual summer vacation. Rohan Bros. are full of work, and employ 200 workmen. They are putting six new steel boilers in the transfer steamer Chickasaw, and seven in the works of the St. Louis Distilling Company. The Brownell & Wight Car Company are making considerable enlargement of their works, which, when completed, will give them facilities for turning out completed street cars at the rate of one a day. It will be remembered that the management of the St. Louis Bolt and Iron Company, whose works are located on the opposite side of the river, and the Tudor Iron Company, whose works were in the southern portion of the city, near the arsenal, are substantially under one management. The machinery of the Tudor Works has been removed to the Bolt and Iron Company's works, where it has been erected and is now in operation.

Messrs. Frank G. Hopkins & Co., wholesale dealers in firearms, of St. Joseph, have made an assignment. The Parker Gun Company, of Springfield, Mass., and Messrs. John C. Moore & Sons, of New York, are among the creditors. It is expected that their assets will satisfy nearly all liabilities.

MICHIGAN.

The following table exhibits, in gross tons, the total lake shipments of iron ore the present season, up to and including Aug. 24, together with the amount shipped during the corresponding period last year:

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Marquette	490,129	459,066
L'Anse	32,353	39,494
Total	1,164,159	1,281,038

An increase of 116,879 gross tons. In addition to this, pig iron, ore and quartz were shipped as follows:

PIG IRON.

Carp River Iron Co.'s furnaces..... 4,739

Pioneer Furnaces..... 902

Total pig iron..... 5,641

QUARTZ.

Carp River Iron Company..... 3,677

Ore to local points..... 16,793

Total ore, pig iron and quartz..... 25,515

Marguerite Mining Journal.

The Excelsior Furnace, at Ishpeming, which was burned some months ago, has been repaired, and will probably be blown in this week.

The Delroy Glass Works, at Detroit, were burned down on Saturday, the 3d inst., the establishment being a total loss. Seventy men were employed, who are now idle. The works had been idle since July 1, having been enlarged and fitted up in excellent shape and thoroughly equipped. In the meantime the men all had been got together again and had put in the first melting. Loss, \$40,000 to \$50,000; insured for half that amount. The works will be immediately rebuilt of brick and iron, and it is hoped to get them ready by the opening of winter.

Carp Furnace and the Rolling Mill Furnace at Ishpeming, are running steadily and doing good work.

Martel Furnace was blown in Aug. 15.

Decorative Cut Metal Work.

The perforating of metal for decorative, ecclesiastical and domestic purposes, by means of a machine-saw, is one of the curiosities of Parisian industry. The achievements of the small steel instrument working through dense sheets of metal, one piled on top of another, have been compared by a French critic to the easy action of a knife cutting through a roll of butter. Almost as extraordinary as the facility with which a block of iron, a plate of copper, brass or steel, is ornamented, are the numerous designs and purposes to which metal is applied.

There appears to be nothing required,

from a memorial brass to a palace gate, from a door panel to a magnificent Gothic window, from a Renaissance jewel box to a fender, that the wonderful little instrument cannot turn out.

Some of the smallest articles, such as monograms, can be manufactured almost as minutely as hair-work, and there are branches of flowers for the decoration of plush boxes. Architects have found this remarkable saw a valuable ally in the decoration of modern residences;

the whole facade of the Gymnasium theatre,

which has been completely restored, is ornamented with gilt iron, undertaken by the Societe Francaise, of which Madame Delong is the leader and indefatigable manager.

That a woman should have given the first impulse to such masculine work, and that she should have improved it in silence until the Paris Exposition in 1878 brought to light her kiosk, displaying all the different decorative applications of cut-metal work, is a fact of which women may be proud.

One of the branches to the perfection of

which much care and time have been

bestowed by the Societe Francaise is the

coloring of cut-out metal work.

It is totally distinct from the polished and engraved metal, of which beautiful specimens are exhibited, revealing a lightness and delicacy

that contrast with the solidity of other

branches. Colored metal work decorates

cornices, ceilings, &c., representing griffins, arabesques, chimeras, and any style of ornamentation which the taste of the day decrees. The shading is so minute that when any of these colored designs are attached, like *applique* needlework, to a groundwork of velvet, the visitor naturally supposes this intricate fret-work is merely painting, never suspecting the presence of metal.

Among the latest and most admired achievements of the Rue Bayen Works (Thernes) are two stained windows representing exotic foliage covered with beautiful metal work; and among the most fanciful is a Christmas tree entirely of copper, the branches being Gothic figures that reproduce cathedral sculpture, and which, being pierced with small holes, can hold all the golden fruit of the Hesperides. The extremity of each branch is the head of an apocryphal bird or animal, dear to builders of the thirteenth or fourteenth century. Among the most important public works executed for the city of Paris are the entrance door of the memorial monument of Bourget, the communion rails and chapel gate of St. Ambroise Church, the communion rails of St. Vincent de Paul, the rosaces and other decorative metal work at the Gymnase; while private orders of a no less sumptuous nature have been executed for the residences of the Rothschilds, for the late M. Menier's house in the Park Monceau, principally the Byzantine oratory; for the Louvre, a large dry goods establishment; for M. Boissier, the confectioner, and for the Paris residence of the ex Queen of Spain.

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The Excelsior Furnace, at Ishpeming, which was burned some months ago, has been repaired, and will probably be blown in this week.

The Delroy Glass Works, at Detroit, were burned down on Saturday, the 3d inst., the establishment being a total loss. Seventy men were employed, who are now idle. The works had been idle since July 1, having been enlarged and fitted up in excellent shape and thoroughly equipped. In the meantime the men all had been got together again and had put in the first melting. Loss, \$40,000 to \$50,000; insured for half that amount. The works will be immediately rebuilt of brick and iron, and it is hoped to get them ready by the opening of winter.

Carp Furnace and the Rolling Mill Furnace at Ishpeming, are running steadily and doing good work.

Martel Furnace was blown in Aug. 15.

Decorative Cut Metal Work.

The perforating of metal for decorative, ecclesiastical and domestic purposes, by means of a machine-saw, is one of the curiosities of Parisian industry. The achievements of the small steel instrument working through dense sheets of metal, one piled on top of another, have been compared by a French critic to the easy action of a knife cutting through a roll of butter. Almost as extraordinary as the facility with which a block of iron, a plate of copper, brass or steel, is ornamented, are the numerous designs and purposes to which metal is applied.

There appears to be nothing required,

from a memorial brass to a palace gate,

from a door panel to a magnificent Gothic window, from a Renaissance jewel box to a fender, that the wonderful little instrument cannot turn out.

Some of the smallest articles, such as monograms, can be manufactured almost as minutely as hair-work, and there are branches of flowers for

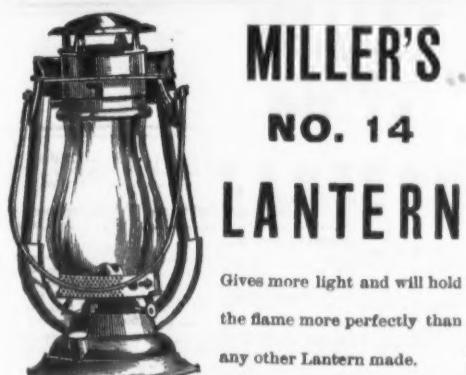
The Iron Age Directory and Index to Advertisements.

and Index to Advertisements.

NEW YORK WHOLESALE PRICES, September 7, 1881.

METALS.

IRON.—DUTY		BARS, 1 to 10 cwt. 1/2 in. to 1 in. Sheet, Band Horn and Scroll, 1/2 in. to 1 in. 1/2 in. provided, that none of the above iron or steel shall pay more than 30 per cent. Figs. 87 & 90 ton. Polish Silver Scrap, \$6 per ton. Wrought Scrap, \$8 per ton. Cast Scrap, \$6 per ton. Railroad rods, 100 lbs. Boiler and Plate, 1/2 in. 1/2 in.	
IRON.—AMERICAN		Foundry No. 1..... 1/2 ton 24.50 @ 22.50 1/2 ton 22.00 @ 22.50 Gray Forge..... 1/2 ton 21.00	
Eddington..... 1/2 ton 21.00 Carmarthen..... 1/2 ton 22.00 Coitness..... 1/2 ton 22.00 Glenarnock..... 1/2 ton 22.50 @ 23.00 Gartsherrie..... 1/2 ton 23.00			
Rails..... 1/2 ton 24.50 @ 29.00 Steel (at mill) (1882 delivery)..... 1/2 ton 24.00 @ 29.00 Old Rail D H..... 1/2 ton 20.00			
Scrap— Wrought Scrap 1/2 ton..... 27.50 @ 30.00 Bar Iron, 1/2 ton short.....			
Common Iron:— 1/2 in. round and square..... 1/2 ton 2.40 1/2 in. 6 in. to 1 in. round and square..... 1/2 ton 2.40 Refined Iron:— 1/2 in. 3 in. round and square..... 1/2 ton 2.6 @ 2.70 1/2 in. 6 in. to 1 in. round and square..... 1/2 ton 2.7 @ 2.80 Rod—1/2 in. and 11/16 in. round and square..... 1/2 ton 2.7 @ 2.80 Bands—1 to 6 in. to No. 12..... 1/2 ton 2.7 @ 2.80 Norway Nail Heads.....			
Sheet Iron.— Common American..... R. G. American Nos. 10 to 20..... 1/2 ton 7/8 @ 2.40 21 to 22..... 1/2 ton 7/8 @ 2.40 23 to 25..... 1/2 ton 7/8 @ 2.40 27..... 1/2 ton 7/8 @ 2.40 35..... 1/2 ton 7/8 @ 2.40			
Unplated..... 1/2 ton 7/8 @ 2.40 21 to 24..... 1/2 ton 7/8 @ 2.40 25 to 26..... 1/2 ton 7/8 @ 2.40 27..... 1/2 ton 7/8 @ 2.40 35..... 1/2 ton 7/8 @ 2.40			
Plated Plated..... 1/2 ton 7/8 @ 2.40 Brazers' Copper..... 1/2 ton 7/8 @ 2.40 American Cold Roasted..... 1/2 ton 7/8 @ 2.40			
COPPER.—DUTY			
Pig, Bar and Ingots, 1/2 ton. Old Copper, 45% ad valorem. Manufactured (including all articles of which Copper is a component of chief value), 45% ad valorem.			
American Ingots..... 1/2 ton See Trade Report Sheathing Brassers' Copper, Bolts, &c. Brazers' Copper, ordinary sizes, 100s. per sq. ft., and over per lb., 250			
Brazers' Copper, ordinary sizes, under 16 oz. and over 12 oz., 1/2 ton..... 1/2 ton 280			
Brazers' Copper, 1/2 ton..... 1/2 ton 280			
Copper, 1/2 ton..... 1/2 ton 280			
Copper is Sheathing except 1/2 in. inches and does not exceed 34 oz. to the sq. ft.			
TINNED.			
4 oz. Hollow sheet, 3/16 in. per square foot..... sheet c. For tinning both sides, double and triple amount O'NEILL'S PATENT PLATED COPPER.—Net.			
14 oz. and 16 oz. and heavier..... 1/2 ton 230 12 oz. and lighter..... 1/2 ton 230			
Boiler Sheets.....			
7 in., 14 oz.; 8 in., 14 oz.; 9 in., 14 oz. 4 and 16 oz. and heavier, 1/2 ton 230 (And all sizes over 20 in. wide.) 14 oz. and 16 oz. and heavier..... 1/2 ton 230			
16 oz. and heavier..... 1/2 ton 230			
Brass.			
From & Sharp's Gauge the Standard for Metals. Old English Gauge the Standard for BRASS MANUFACTURERS' PRICE LIST—dis. Nominal.			
Cash prices for Roll and Sheet Brass, for less quantity than 100 lbs. add 10%.			
Hollow brass.....			
All Nos. not thinner than No. 26, wider than 2 in., not wider than 1/2 in. 30			
All Nos. to No. 26, inclusive, and widths over 14 to 22 in., inclusive, not wider than 1/2 in. 30			
A 1/2 in. to No. 26, inclusive, and widths over 20 to 26 in., inclusive 30			
30% ad. on each No. above Nos. 26 to 36, incl. 30% ad. on each No. 36 to 40 in. and over 30			
Circular Sheets, in diam. from 1 in. to 14, inclusive, 30 OVER 14..... 30			
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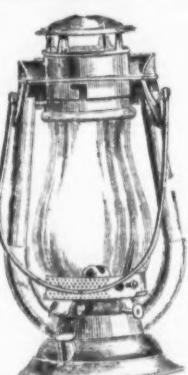


**MILLER'S
NO. 14
LANTERN**

Gives more light and will hold the flame more perfectly than any other Lantern made.



For Prices and Samples, address
Edw'd Miller & Co.,
Meriden, Conn.,
or
35 Warren St.,
New York.



Manufacturers of
Lanterns,
Brass Kettles,
Machine Oilers,
Kerosene Goods,
Tinners' Trimmings,
&c., &c.



**AKRON IRON COMPANY,
AKRON, OHIO,**

Sole Manufacturers of

Patent Hot Polished Shafting.

Medal of Superiority awarded at American Institute Fair of 1880.

This Shafting is superior to any in the market, and commends itself to the trade for the following reasons, viz :
1st. It is perfectly straight and round.
2d. It can be finished accurately to any desired gauge.
3d. It will not rust or tarnish easily.
4th. It will not warp or spring in key seating.
5th. Its surface is composed of magnetic oxide of iron, and consequently presents a journal or bearing surface that is unexcelled.

6th. The peculiarity of its manufacture is such as to entail loss in making it, if other than superior stock is used. Those purchasing it may therefore be assured of receiving first-class material.

Price lists, catalogues and references furnished on application.
Where parties desire it we cut keyways or splines any length required, at a moderate charge.

AKRON IRON CO., Akron, Ohio.

AGENTS:
E. P. BULLARD, 14 Dey Street, N. Y.
S. E. BLISS, 89 Lake Street, Chicago, Ill.
D. N. BROWN MACHINERY CO., St. Louis, Mo.
J. H. KERRICK & CO., Indianapolis, Ind.
JOSHUA HENDY, San Francisco, Cal.

**TRENTON LOCK & HARDWARE CO.,
TRENTON, N. J.**

MANUFACTURERS OF

**DOOR LOCKS AND
HARDWARE,**

BRONZED IRON AND BRONZE METAL DOOR TRIMMINGS, BUTTS AND HARDWARE.

CAST BUTTS,
DOOR BOLTS,
WELL WHEELS,
FLUSH BOLTS,
SHUTTER BOLTS,
PAD LOCKS,
PHILADELPHIA SLIDING DOOR HANGERS AND RAIL.

Having largely increased our facilities and line of goods, we invite the attention of the Trade.

Illustrated Catalogues Furnished on Application.
Agencies. { James M. Vance & Co., No. 211 Market St., Philadelphia.
James Marshall, No. 48 Warren St., New York.

**THE STANLEY WORKS,
MANUFACTURERS OF
Wrought Iron Butts, Hinges
AND
DOOR BOLTS,
Plain, Japanned, Bronzed and Plated.**

FACTORIES: New Britain, Connecticut. WAREHOUSE: 79 Chambers St., New York.

**THE GLOBE MANUFACTURING CO.,
Successors to THE MIDDLETOWN TOOL CO.**

Manufacturers of

**HARDWARE,
"Baldwin" Plane Irons.**

(Every iron of our make warranted a perfect cutter.) ALSO,
Galvanized Hammock or Boat Snaps and Gaff Topsail Self-mousing Ship Hooks, Harness Snaps, Baby Snaps, Washer Cutters, Pocket Wrenches, Amateur Lathes, &c.

MIDDLETOWN, CONN.

Send for Catalogue and Discount Sheet.

SABIN MFG. CO.
MONTPELIER, VT., MANUFACTURERS OF
DOUBLE-ACTING SPRING BUTTS,

SABIN'S LEVER DOOR SPRINGS, For heavy doors,

BOSS AND CROWN SPRINGS, For light doors.

Send for Catalogue. Represented in New York by DAVID HYMES & CO., 99 Church St.

GUN POWDER.
Laflin & Rand Powder Co.

No. 39 Murray Street, New York,
Manufacture and sell the following celebrated brands of Sporting Powder known everywhere as
ORANGE LIGHTNING,
ORANGE DUCKING,
ORANGE RIFLE

more popular than any Powder now in use.
Blasting Powder and Electrical Blasting Apparatus.

Military Powder on hand and made to order.
SAFETY FUSE, FRICTIONAL & PLATINUM FUSES.

Pamphlets showing sizes of grain sent free.

Mineral Wool.

Patented May 31, 1870.

A fibrous material, encasing about 90 per cent. of its volume of air, and therefore a superior

NON-CONDUCTOR

OF

HEAT AND SOUND.

Being made from the slag of blast furnaces, it is fire-proof and durable in contact with heated surfaces. Readily applied.

Heaviest grade about 25 lbs. per cubic foot. Price, 1 cent per lb.

U.S. MINERAL WOOL CO.,

16 Cortlandt St., New York.

Flanders Radius Planer.



For planing Links, Blocks and circular work on ordinary planer.

Price and descriptive circular on application.

L. B. FLANDERS MACHINE WORKS,

1025 Hamilton St., Philadelphia, Pa.

KEYSTONE RIVETING FORGE,



An Improved Pattern.

Cheap and Durable.

BEST IN THE MARKET.

Send for catalogue to

KEYSTONE PORTABLE FORGE CO.,

204 North 4th St., Philadelphia, Pa.

MACHINERY FOR

Straightening and Cutting Wire

Of all Sizes to any Length.

Send for Catalogue.

JOHN ADT,

New Haven, Conn., U. S. A.

John Waldron,

Manufacturer of Sprout's Double and Single Shear

Horse Hay Forks

And Sprout's

HAY ELEVATORS, PULLEYS and GRAPPLERS.

Send for Circulars.

Muncy, Lycoming Co., Pa.

STOVE REPAIRS.

Repairs for Stoves made at Troy, Albany, Ro-

chester, Cleveland, Buffalo, Boston, St. Louis,

Quincy, Chicago, Milwaukee and elsewhere, at

W. C. METZNER,

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**Providence Tool Co.,
PROVIDENCE, R. I.**

TURNBUCKLES.



Prices on Application.
HENRY B. NEWHALL, J. H. WORK, S. H. & E. Y. MOORE,
105 Chambers St., 13 Pearl St., 163 & 165 Lake St.,
NEW YORK AGENT. BOSTON AGENT. CHICAGO AGENT.

**THE GENUINE STEBBINS
MOLASSES & OIL GATES,**

MANUFACTURED ONLY BY
E. STEBBINS MFG. CO.
BRASS FOUNDERS AND FINISHERS.

Sole Manufacturers
Stebbins and Brightwood

**COMPRESSION
AND
GROUND KEY WORK.**

Send for circular and price list.
H. M. BREWSTER, Agent
Brightwood P. O., Mass.

The Western trade can be supplied by
TREDWELL, COPPINS & CO., 130 Lake St., Chicago, Ill.

**Office of NELSON LYON,
SOLE MANUFACTURER OF
Lyon's Patent Metallic
Heel Stiffeners,**

Also, Manufacturer of
BRUSHES

Of Every Description,
Nos. 17 & 19 Green St.,
Albany, N. Y., Dec. 8, 1880.

To All Whom it May Concern:

To-day a decree in my suit against G. T. Fisher & Co., of Detroit, for an infringement of my patent, was made and entered, of which the following is an extract:

At a session of the Circuit Court of the United States for the Eastern District of Michigan, held at Detroit

on Wednesday, the 8th day of December, 1880.

NELSON LYON

GUYON T. FISHER, et al.

It is ordered, adjudged and decreed, that the act entitled "An act for the relief of Nelson Lyon and Jerome S. James," passed by Congress and approved April 1, 1880, &c., is a good, valid and constitutional act.

That the original patent, bearing date July 9, 1874, and numbered 128,837, granted and issued to Joseph Barsalou, Jr., of Jersey City, New Jersey, and when corrected by the Acting Commissioner of Patents, as directed by said act, was a good and valid patent.

That the said Joseph Barsalou was the original and first inventor of the improvements in metallic stiffeners for boot and shoe heels mentioned and described in said letters patent.

That the original patent, No. 128,837, was granted to Nelson Lyon for an improvement in the use of heel stiffeners for boots and shoes, originally patented as aforesaid, is a good and valid patent; that said Lyon is exclusively possessed of said Letters Patent and the invention thereby secured.

That the defendants, G. T. Fisher & Co., and each of them, have infringed upon the said patent and upon the exclusive rights of said Lyon.

That said Lyon is entitled to all the profits, &c., he has made, and in addition thereto all the damage he has suffered by reason of the infringements by the defendants, and also the costs, charges and disbursements in the action.

It is also further ordered, adjudged and decreed, that a perpetual injunction be issued against said defendants, according to the prayer of the said complainant's bill.

You are also hereby notified that the perpetual injunction has been issued and served on the defendants.

All questions as to damages and settlements in relation to infringements under my patents must be addressed to and made with my attorney, WILLIAM H. KING, in my care at the above address.

NELSON LYON.

**Wilson Bohannan,
Manufacturer of Patent**

BRASS PAD LOCKS

For Railroad Switches, Freight Cars, and the Hardware Trade, also with Brass and Steel Keys, with and without chains.

Patent Horizontal Rim Cylinder Night Latch.

Self-adjusting to doors of any thickness, with Patent Stop and Drawer Back Knob.

RIGHT OR LEFT HAND.

PASSENGER CAR LOCKS, Bronzed, Nickel-Plated and Japan.

Patent Catalogues and Samples sent upon application.

BROOKLYN, N. Y.

New York Wholesale Prices, September 7, 1881.

HARDWARE

Anvil.	
Eagle Anvils American	dis 10%
Wrights	10% @ 11c
Armitage's Mouse Hole	9% @ 9c
Trenton	10%
Wilkinson's	10c
Anvil, File and Drill.	
Millers Falls Co., \$28.00	dis 10%
Augger and Bits.	
Coun. Valley Mfg. Co.	
Douglas Mfg. Co.	
Humphreysville Mfg. Co.	
Ives	dis 10%
Bescher (French, Swift & Co.)	from list of Jan. 7, 1880
Griswold	
Nobles Mfg. Co.	

Wrought Brass.....	dis
Cast Brass, Tiebout's.	dis
" Corbin's.	dis
Fast Joint, Narrow.....	dis
" Broad	dis
Loose Joint.....	dis
" Japanned	dis
" with Acorn?	dis
" Japanned, with acorns.	dis
Parliament Suite.....	dis
Mayer's Hinges.....	dis
Loose Pin, no Acorn.....	dis
" Acorns.	dis
" " Japanned	dis
" " Plated Tips.....	dis
WROUGHT IRON.	
Fast Joint Narrow.....	dis
" Lt. Narrow.....	dis

Cutlery.
Meriden Cutlery Co.
Al. Milledge Pro's Furniture
The Wm. Rogers Co.
Naugatuck Cutlery
Aaron Burkinshaw
Dog Collars.
Embossed Gilt
Leather.....
Brass.....
Celluloid.....
Door Springs.
Torrey's Rod.....
Gray's ".....
Fee Rod.....
Warner's.....
Gem (Coll)-
No. 1, Large, Jap.
No. 2, Medium,
No. 3, Small.

eg Irons.
and Cuffs, \$15.00 per doz }
g Irons, \$25 per doz
..... dis 25
bunch Latches—
2 3 4
1.18 1.35 1.40
..... per doz .50¢ per doz
hes., \$2 doz 75¢ per doz
..... Nuts, Gr. 62, Plate #1, \$1.00 per doz
..... per doz \$1.10 per doz
..... dis 55¢ per doz
..... dis 65¢ per doz
..... dis 75¢ per doz
..... dis 85¢ per doz
..... dis 95¢ per doz
Handles.
al Saw Handles
..... dis 25
..... dis 25

De Beque Police.. Small, \$6 25; Med., \$7.50; Large, \$12.00	dis 10 to 15 %
Convex Reflector.....	\$2.75 # doz, dis 10 %
Lawn Mowers.	
Pennsylvania, Philadelphia and Excelsior, new list.....	dis 30 %
Lemon Squeezers.	
Porcelain Lined.....	# doz \$6.00--dis 30 %
Wood.....	# doz \$3.00--dis 30 %
Eureka, Tinned.....	# doz \$8.00--dis 10 %
Dunlap's Improved.....	# doz \$4.00--dis 10 %
Sammis'.... No. 1, \$7.00; No. 2, \$12.00	dis 45 %
Townsend's Patent.....	\$6.00 # doz, dis 33 1/3 %
Linen. --Linen Fish.....	dis 25 to 10 %
Cotton Chalk.....	dis 55 %
Cotton Lake Chalk... Nos. 0, 1, 2, 3, \$6.00, \$6.50, \$7.00, \$7.50.....	dis 25 %
Mason's Linen.....	dis 25 to 10 %
Wire Clothes, Galvanized.....	each 25¢ to 400 net
Locks and Latches.	

Ross's Eng. Co.	Broad.
Kesson's Patent.....	dis 40¢ to 10¢
Cook's, Douglass Mfg. Co.	dis 40¢ to 10¢
Snell Mfg. Co.'s C. S. Augers.....	dis 40¢ to 10¢
" " C. S. Machine.....	dis 40¢ to 10¢
" " C. S Bits.....	dis 40¢ to 10¢
Jennings' Bits.....	dis 35¢ to 10¢
Patent Scid Head.....	dis 30¢ to 10¢
W. H. Smith's Patent.....	dis 30¢ to 10¢
Russell Jennings' Auger, Dowel, Machine Dowel and Hand-Rail Bits.....	dis 10¢ to 30¢ to 10¢
Russell Jennings' Augers.....	dis 10¢ to 30¢ to 10¢
Mussell Jennings' Car and Machine Bits, Toring Machine and Millwrights' Augers dis 1.....	dis 10¢ to 30¢ to 10¢
Imitation Jennings' Bits.....	dis 40¢ to 45¢
" Jennings' Bits.....	dis 33¢ to 35¢ to 10¢
Andrews Bits.....	dis 40¢ to 10¢
Expansive Bits, Parker's, smart, size 1" to 1 1/2".....	dis 30¢ to 10¢
" Ives'.....	dis 30¢ to 10¢
" Blake's.....	dis 30¢ to 10¢
" Parmelee's.....	dis 30¢ to 10¢
Hollow Augers.....	dis 15¢ to 10¢
Ives'.....	French, Swift & Co.....
" " Douglas.....	dis 10¢ to 10¢
" " Bonnev's Adjust.....	W dos 24¢ to 26¢ to 10¢
" " Stearns' Adjust.....	W dos 24¢ to 26¢ to 10¢
" " Ives' Expansive, each \$4.00 to \$6.00.....	dis 20¢ to 25¢
" " Univ' Expansive, each \$4.00 to \$6.00.....	dis 20¢ to 25¢
Woods.	
Gimlet Bits.....	\$7.50 W gross, dis 45¢ to 10¢
" Diamond.....	W dos 8.10 to 10¢ to 10¢
" Bee".....	dis 35¢ to 10¢
Double Cut Gimlet Bits, Shepardson's.....	dis 40¢
" Ct Valley Mfg. Co.....	dis 50¢ to 10¢
" Hartwell's.....	dis 60¢ to 10¢
" Douglas'.....	dis 40¢ to 10¢
" Ives'.....	dis 40¢ to 10¢
Marie's Bit Stock Drill.....	dis 25¢ to 10¢
" Rommedahl's Ship Augers.....	dis 15¢ to 10¢
Watrous Ship Augers.....	dis 15¢ to 10¢
" Extension Lip.....	dis 30¢
Awi Heads.	
Bowing Brass Ferrule.....	\$3.50 W gross—dis 40¢ to 10¢
" "	3.50 " dis 40¢ to 10¢
Patent Sewing, Short.....	\$1.00 W dos—dis 40¢ to 10¢
" Long.....	\$1.40 W dos—dis 10¢ to 10¢
Patent Peg Plain Top.....	\$10.00 W gross—dis 40¢ to 10¢
" Leather Top.....	12.00 " dis 40¢ to 10¢
Awi, Brad Sets, etc.	
Awi, Sewing, Common.....	W gross \$1.70—dis 25¢ to 10¢
Shouldered Peg.....	W gross 2.45—dis 25¢ to 10¢
Patent Peg.....	W gross .65—dis 25¢ to 10¢
Shouldered Brad.....	W gross 2.70—dis 25¢ to 10¢
Loose Joint, Broad.	
Table Butts, Back Flaps, &c.	dis
Inside Blind, Regular.	dis
" Light.	dis
Loose Pin, W.R.T.	
" Light.	dis
Spring Hinges.	
American Spiral Spring Butt Co., Jas'd.	dis
" " " French.	dis
Gem Spiral Spring Butts, Japanned.	dis
" " " Ornamental.	dis
Geer's Spring and Blank Butts.	dis
Sabin Mfg. Co.'s Double Acting.	dis
Union Spiral Spring, Japanned.	dis
" " " Ornamental.	dis
Union Spring Hinge Co.'s.	dis
American Spring Hinge Co.'s.	dis
Union Mfg. Co.	dis
McNamee's.	dis
Buckman's.	dis
Blind Butts, Parker.	dis
" Palmer.	dis
" Seymore.	dis
" Shepard's " Double Locking	dis
Nos 1 & 2.	dis
" Shepard's " Nolcesless, Nos 3 &	dis
" 4 to 10.	dis
" Lull & Porter.	dis 7¢
" Nicholson.	dis
" Huffer.	dis
Clark's. Nos. 1, 3, 4 and 12.	dis
Sargent's No. 1, 3,	dis
" No. 12.	dis 7¢
Reading's Gravity.	dis 7¢
Box Pins.	
Hotchkiss'.	low price
Humason, Beckley & Co.'s.	dis
Sargent & Co'.	dis \$19.70 and \$21.40, dis 60¢ to 10¢
Butchers' Cleavers.	
Humason & Beckley Mfg. Co.	dis
Bradley's.	dis
Beatty's.	dis
1 2 3 4 5 6 7 8	
\$1.50 1.00 2.10 2.40 27.00 30.00 35.50	
C Can Openers.	
American.	W gross \$2.70 to 10¢
Duplex.	W dos 2.20, dis 1¢
Lyman's.	W dos \$3.75 to 10¢
No 4. French.	W dos \$2.25, dis
No 4. Iron Handle.	W gross \$7.50 to 10¢

Star-City	For Copy
No. 4.	Screen Doors
No. 5.	Medium.
No. 7.	Large.
Sabin's Lever	...
Sabin's Box	...
Sabin's Crown	...
Philadelphia	...
Barker's Concealed	...
Cowell's	...
Rubber, complete	...
Breweries	...
Drawing Knives	...
Arlington Edge Tool	...
Crossman's No. 1	...
Merrill	...
Nobles Mfg. Co	...
Bradley's	...
Adjustable Handie	...
Withytree Tool Co.	...
Douglas	...
 Drills and Drilling	
Blacksmiths	...
Blacksmiths Self Fitting	...
Breast P. S. & W.	...
Hotchkiss	...
Breast, Wilson's	...
" Miller's Failure	...
" Bartholomew	...
Ratchet, Merrill's	...
" Inversial	...
" Whitney's	...
" Weston's	...
" Moore's Trial	...
Whitney's Hand Drill	...
Wilson's Drill Stock	...
Automatic Boring Tools	...
 Drill Chucks—	
Danbury	...
Egg Beaters	...
Dover	...
Acme	...
Standard	...
National	...
Family	...
 Elevator Buckets	
Hilli E. Buckets, light	...

assorted,	\$ gross 80	dis 20%
large,	5.00	
assorted,	5.00	
large,	6.00	dis
assorted,	3.00	20&10%
assorted,	5.00	5.00
	2.75	25@10%
	7.00*	
		dis 35%
		Set \$1.25, net
		\$1.25, net
		.dis 50%to
		.dis 65%to
		.dis 70%to
Friction),		.dis 65%to
		.dis 5.0%to
		.dis 50%to
.4 in., #12; 4 in., #12;	dis 10%	dis 50%to
changed to	1.00	dis 5% & 10%
"	14.00	dis 5% @ 10%
"	14.00	dis 5% @ 10%
		.dis 10%
		.dis 10%
		.dis 65%to
		.dis 75%
		.dis 40%to
		.dis 45@10%
		.dis 15%
# dos \$7.35	\$8.00	85.75
# dos 7.75	8.00	9.25
# dos 7.50	8.00	9.25
		20&10% to
# dos \$7.25	\$8.00	85.75
# dos 7.75	8.00	9.25
# dos 7.50	8.00	9.25
		.dis 35% @ 40%
# dos \$8.00	\$8.40	90.00
# dos 9.00	9.00	10.00
# dos 8.00	.90	0.00
		.dis 30%
# dos \$7.45	\$8.00	85.80
# dos 8.25	8.75	9.25
# dos 7.50	8.00	9.25
		.dis 25%
# dos \$7.50	\$8.00	85.00
# dos 8.00	8.00	9.00
# dos 8.00	8.00	9.00

Cabinet	Eagle.....	(Changes made in list price of
"	Gaylord.....	some numbers Jan. 1, 1881.
"	Wardrobe.....	dis 25&2% dis 10%
"	P. & F. Corbin.....	dis 60%
"	A. E. Dietz.....	dis 30&4% dis 15&2% Trunk, new list, Jan. 1, 1881.
Trunk	Langstroth & Crane's List Jan. 1 "77.	
Round Key	No. 1 to 5.....	dis 40&10% No. 1 to 12.....
Flat Key	.....	dis 10% to 10% A. E. Dietz, Flat Key.....
Yale Lock Co., Flat Key.....	.....	dis 30&4% Yale Lock Co., Flat Key.....
" Sheppardson" or " U. S.	.....	dis 40% " Fetter" or "American".....
Plate	.....	dis 30% F. Many's "Extension Cylinder".....
DOOR LOCKS, &c.		
Branford.....	.....
Norwalk.....	.....
Norwich.....	.....
P. & F. Corbin.....	.....
Kussell & Erwin.....	.....	List of June 10, with changes of Dec. 1, 1880, and April 19, 1881, dis 4&2%
Mallory, Wheeler & Co.....	.....
Reading Hardware Co.....	.....
Trenton Lock Co.....	.....
Padiuccis - Russell & Erwin.....	.....
"	Mallory, Wheeler & Co.....	{ and 2% for cash Wm. Wilcox & Co.....
"	Yale Lock Mfg. Co.'s "Standard".....	dis 40% Komer's.....
"	Conestoga.....	dis 30% J. H. McWilliams.....
"	A. E. Dietz.....	dis 10% dis 35%
Lustre. - 4-oz bottles, per doz, \$2; per gro, \$18ne &	.....
Mallets. - HICKORY.....	.....	dis 10% to 10%
M	Lignumvitae.....	dis 10% to 10%
Penfield Block Co., Lig., Apple & Hickory.....	.....	dis 30%
Meat Cutters.		
Dixon's (P. S. & W.) Nos. I	.....	3 4
"	W. doz. \$14.00	17.00 19.00 30.00-dis 30%
Miles' Challenge.....	Nos. I	2 3
"	W. doz. \$22.00	30.00 40.00-dis 35%
Perry's Nos. I	2 3	4 4&rd 5&rd
Each.....	\$1.00 4.00 5.00	11.00 13.00 36.00-dis 30%
Woodruff's (P. S. & W.) - N.C. 100	150	
Hales'.....	Nos. II	12 13
"	W. doz. \$27.00	33.00 41.00-dis 40&10&2%
Draw Cut. - Nos. 6	3	8 10
Each.....	\$5.00	7.00 8.00 22.00 40.00-dis 30%
American.....	Nos.	1 2 3 4 B 5
Klein's No. 1	.....	\$2.00 per doz., dis 40%
" Gem.....	.....	\$40 per doz., dis 40%

Silver & Denning		\$2 per doz.	dis 40
Pennsylvania			dis 25
Nos.	1	2	dis 40 to 10%
" doz.	\$24.00	\$28.00	\$36.00
Beef Shavers (Enterprise Mfg. Co.)			dis 25 %
Mincing Knives.			
Ain., (2d quality) per gross, 1 blade, \$7: 2 blades, \$12			net
2 blades, \$15			
Lothrop's			dis 20 to 10%
smith's.. per doz. Single, \$1.35; Double, \$1.80			dis 10 to 5%
Cowles Hdw. Co.			dis 20 to 10%
Molasses Cutters.			
Stevens' Pattern			dis 20
" Genuine			dis 15 to 10%
" Tinned Ends			dis 10 to 5%
Chase's Hard Metal			dis 20 to 10%
Chase's			dis 20
Lincoln's Pattern			dis 20 to 10%
Weed's			dis 15 to 10%
Boss, No.	1	2	3
Boss,	\$7.00	\$8.00	\$9.00
" Japanned Finish			\$10.00 per doz
" Bronze "			dis 50 to 10%
Nails.			See Trade Rep.
Nuts and Washers. —(In lots less than 100 lbs.)			
Brass (10 lb. list.)			
Square Nuts			7/60 off list
Hexagon Nuts			7/40 off list
Washers			7/20 off list
Nut Crackers			
Table (Humason & Beckley Mfg. Co.)			dis 33 1/3
Blake's Pattern			dis 20 to 10%
Turner & Seymour Mfg. Co.			dis 40 %
Oakum.			
Best			W B 110
U. S. Navy			W B 100
Knavy			W B 940
Oilers. —Zinc and Tin			dis 6 to 5
Brass and Copper			dis 50 %
Maliceable (Hammer's)			W dos \$1.00, dis 10 %
Prior's Patent or "Paragon		Zinc.	dis 62 1/2
"		Brass.	dis 10 %
Olmstead's, Tin and Zinc,			dis 6 to 5
Brass and Copper			dis 50 %
Broughton's, Zinc.			dis 62 1/2
Brass.			dis 50 %
Oil Bails.			dis 5 to 10%
Pencils.			
Faber's Carpenters'			High list, dis 10 to 5
Round Gilt			W gross \$5.25 net

Blacksmiths', Common.	dis 45	Red.	W gross 100 lb.
Extra and Pittsburgh Pattern.	dis 20	Blue.	W gross 100 lb.
Moulders.	dis 25		
Hand Bellows.	dis 15		
Belting. Rubber.			
N, Y Belting and Packing Co.	dis. 20@ 5%		
Bit Holders.			
Extension, Barber's.	* doz \$1.00--dis 10@ 5%	"	new list, dis 25@ 5%
" Iven's.	* doz \$1.00--dis 10@ 5%	"	
Diagonal.	* doz \$2.00--dis 10@ 5%	"	
Angular.	* doz \$2.00--dis 10@ 5%	"	
Blind Adjusters. —Domestic.	* doz \$1.00--dis 11@ 5%	"	
Excelsior.	* doz \$1.00--dis 10@ 5%	"	
Blind Fasteners.			
Mackrell's.	per doz pairs, \$1.00, dis 10@ 5%	"	
Vane band, screw pattern, per gross.	\$1.00, dis 25@ 5%	"	
" old pattern.	* gross \$1.00, net	"	
Washburn's Patent.	* gross \$1.00, net	"	
Morrison's.	new list net	"	
Mackrell's.	* doz. pairs, \$0.65, dis. 10@ 5%	"	
Blind Staples.			
arbed, 1/8 in. and larger.	* lb 150 net	"	
" 1/4 in.	* lb 150 net	"	
Blocks.			
Universal Pulley Blocks.	dis 20	"	
Adjustable, Bimetal.	dis 25	"	
Clamps.			
Iron, Providence Tool Co.'s, Wrt. Iron.	dis 25	"	
" Adjustable, Gray's.	dis 25	"	
" " Lamberts.	dis 25	"	
" " Brown's.	dis 25	"	

Flin ting Ma chines.
Knox. 4½-inch Rolls.
" " 6 " "
Peerless. 4-inch Rolls.
" " 5 " "
Eagle. 3½-inch Roll.
" " 5 " "
Eureka. No. 1. 7-inch Roll.
" " No. 2. 4-inch Roll.
Crown. 4½-in. \$3.50; 5 in.
Star. " " 4½ in.
Crown Jewel. " " 6 in.
American. No. 3; 6 in.
Domestic Fluter. " " 6 in.
Geneva Hand Fluter. " " 6 in.
Crown Hand Fluter. No. 1; 6 in.
" " doz.
Shepard Hand Fluter. " " No.
" " " " No.
Clark's Hand Fluter. " " No.
Combined Hand and Self-Service Buffalo. " " No.
Fluting Scissors.
Fly Traps.

... \$3.00 each	{	dis 25 %	Bench-Hotchkiss', \$5.00 per doz.
4.00			" Weston's, \$1.00 per doz.
4.00 each net			" McGill's, \$3.00 per doz.
4.75 each net			Clothes Line Sargent's list.
\$2.15, dis 25 %			" Reading list.
\$2.25, dis 25 %			Ceiling, ? Sargent's list.
... .00 each, dis 10 %			Harness, ? Reading list.
... .00 each, dis 10 %			Coat and Hat, Sargent's list.
\$4.00; 5 in., \$6.00 each dis 20 %			Picture Hooks, Brown, Pat.
\$4.00; 6 in., \$8.00 each dis 20 %			GROSS,
... .00, \$2.40 each, dis 25 %			Tassel (T. & S. Mfg. Co.)
\$3.40; 7 in., \$4.50 each, dis 20 %			Wrought Staples and Hooks, an
... .00 each net			" Staples, Stanley's list.
Bite Metal, ... .00, \$12, dis 25 %			Wire Screw Hooks and Eyes.
\$1, \$10.00; 2, \$12.00, dis 25 %			Grass and Bush.
\$1, \$10.00, dis 25 %			Whimette-Fatent.
No. 84, \$2.00 per doz.			Hooks and Eyes-Malleable Iron.
\$4.50, \$8.00 per doz.			" Brass.
\$7.00, \$12.00; No. 64, \$8.00...net			
... .00, \$15.00, dis 33 1/3 %			
and Iron, ... .00, \$10.00, dis 30 %			
... .00, \$10.00, dis 10 %			
... .00, \$4.50			

No. 2, \$0.00	dis 25%
	dis 10%
	dis 15%
	dis 50% & 10%
	dis 40% to 10%
	dis 60% to 10%
	dis 40% to 10%
	dis 60% & 10%
	dis 40% to 10%
Solid Brass, \$1.00	dis 25%
	dis 10%
	dis 15%
and Staples, \$1.00	dis 70% & 10%
	dis 60% to 10%
	dis 65% to 10%
	dis 100% & 10%
	dis 40% to 10%
OR.....	dis 65% to 10%
	dis 65% to 10%

Dixon's Lead.....	gross	4-50 net
" Lumber	gross	40 & 10 %
Dixon's Carpenters'	dis	40 & 10 %
Packing, Steam.		
N. Y. Belting and Packing Co.	dis	20
Picture Nails.		
Brass Head, Sargent's List.....	dis	cost to 1
" " T. & S. Mfg. Co.	dis	10 to 1
Porcelain Head, Sargent's List	dis	10 to 10 %
" " Judd's List.	dis	10 %
Porcelain Head, T. & S. Mfg. Co.	dis	13-1/2 %
Niles' Patent.	dis	26 %
Picks and Mattocks.	dis	34
Pinking Irons	W	dos 740, net 1
Painting Machines.		
Iagle.	W	dog \$10.00, net 1
istor Plating Machine.....	each	\$15.00, dis 20 %
rown Plating Machines.....	dis	24 %
6in. \$8.00. 10in. \$10.00 each.		
Plane and Plane Items.		
encn, First Quality.	dis	34k 5
" Second "	dis	40 %
Caulking.	dis	24k 5
valley (Stanley R. & L. Co.) new list Jan. '79, dis 20% 1/2		
the Stanley (S. R. & L. Co.)"	dis	10 to 10 %

Field Block Co., Rope and Iron Strap'd	dis 40 \$
Wrot. Iron Com. bushed	dis 25 %
" " " Shears	dis 10 \$
" " " all steel roll'd	dis 10 \$
Stanley R. & L. Co., Rope and Iron Strap'd	dis 40 to 50
Bolts.	
Cast Iron Barrel. Shutter, &c.	dis .50 to 10 %
Cast Iron Chain (Sargent's list)	dis 60 to 10 %
Ives Patent Bolts	dis 40 to 50 %
Wrought Barrels.	
Square	dis 60 to 10 %
" Shutter, all Iron (Stanley's list)	dis 50 to 10 %
" Brass Knob	dis 20 to 10 %
" Sargent's list	dis 60 to 10 %
Sunk Flush. Sargent's	dis 75 to 10 %
" Stanley's	dis 40 & 75 %
B. K. Flush. Com'n. Stanley's	dis 50 to 10 %
" " Be Heavy	dis 40 & 10 %
Plated Knob & Slide Flush	dis 50 to 25 %
Carriage and Tire. Common.	
" Philadelphia. new list	dis 40 to 10 %
" Philadelphia. Pattern	dis 40 to 10 %
" " " Shelton's. (old list) dis 40 to 10 %	
Union Carriage.	
M. B. & W. Carriage (old list)	dis 70 to 10 %
Tire. Am. Screw Co.'s, Phila. new list Nov. 1 '79. dis 75 to 10 %	
" Bay State"	dis 50 & 10 %
" R. B. & W. new list	dis 70 to 10 %
Stove-American Screw Co.'s	dis 40
" R. B. & W.	dis 40
Plow	dis 10 %
" R. B. & W.	dis 40 & 10 %
Machine	dis 60 to 10 %
Bolt Ends	dis 60 %
Berax.	15 C & not
Boring Machines. Upright. Angular.	
First quality, no Augers	dis 40 to 50
Phillips' with Augers	dis 40 to 50
not	7.00
Boxes.	
Interchangeable Shelf Boxes	dis 20 to 50
Braces.	
Q. S. Braces	dis 10 to 50
Wilson Mfg. Co.	dis 10 to 50
Barber's. Co.	dis 10 to 50
poftord's Patent	dis 10 to 50
Nobie's Patent	dis 10 to 50
var Patent Braces	dis 10 to 50
Common Ball (American)	dis 10 to 50
Amidon's	dis 10 to 50
Jarke's Impd.	dis 40 to 50
Empire	dis 30 to 50
Buffalo Ball	dis 40 to 50
Brackets. Shelf (Sargent's).	
teading	dis 60 to 10 %
Hollow, THE. Gage, New England	dis 60 to 10 %
Cabinet.	
Hammer's	dis 10 to 50
Stearns'	dis 10 to 50
Cabinet, Sargent's	dis 10 to 50
Carriage Makers' Sargent's	dis 10 to 50
Cord and Tape (T. & S. Mfg. Co.)	dis 30
Clips. Axle.	
Norway or Best	dis 40 to 50
Superior	dis 60 to 50
Com Hods.	
Collins	dis 35 to 50
Cockeyes.	
Cocks, Brass.	new list, July 10 '80
Glove	" "
Plain Bibbs	" "
Ale and Beer	" "
Coffee Mills.	
Board and Box	dis 45
Wilson's	dis 35 to 45
Sessor's Pat.	dis 50 to 100
American (Enterprise Mfg. Co.)	dis 30
French Steel	dis 25
Combined Dinner Bell and Lantern.	
For Dr. St. L. Co.	dis 30
Compasses, Dividers, &c.	
Compasses	dis 15 to 50
Calipers	dis 15 to 50
Dividers	dis 15 to 50
Bents & Call Co.'s Dividers	dis 10 to 50
" " " Compasses & Calipers	dis 10 to 50
" " " Wing & Inside or Outside	dis 10 to 50
" " " Double	dis 60 to 100
" " " Call's Pat. Inside	dis 30 to 50
Excelsior.	
Miller's Patent	dis 10 to 50
Coopers' Tools.	
Bradley's	dis 15 to 20
Corkscrews.—Humason & B.	
Clough's Wire	dis 25 to 50
Corn Knives and Cutters. —Bradley's	dis 10 to 50
Wadsworth's	dis 35 to 50
Crew Bars.	
Cast Steel	dis 20 to 50
Iron. Steel Points	dis 20 to 50
Curling Irons, &c.	
16, 18, 24, 36, 48, 54, 60, 72, 80, 96, 100, 120, 140, 160, 180, 200, 240	dis 10 to 50
Curtling Tongues	dis 20 to 50
Pinching Irons	dis 20 to 50
Curry Combs.	
Fitch's new list	dis 10 to 50
Horchins' bovine	new list, July 10 '80

per doz.	\$3 ; net					
ing	.dis 40 %					
ro	.dis 40 & 5 %					
esses.	.dis 4 & 5 %					
	.dis 30 %					
	.dis 30 %					
2.	.dis 6 & 10 %					
3	4	5	6	7	8	
5	4.75	5.25	6.00	7.00	8.00	9.00
	.dis cost 10 %					
	.dis cost 10 %					
	.dis cost 10 %					
	.dis 20 %					
	.dis 40 %					
	.dis 40 %					
	.dis 40 %					
	.dis 40 %					
	.dis 40 %					
	.dis 40 %					
	.dis 20 & 10 %					
	.dis 25 %					
	.dis 25 %					
	.dis 30 & 10 %					
	.dis 30 & 10 %					
	B o o k s					
	2.50					
	2.50					
	3.00					
	4.00					
	4.90					
	.dis 50 %					
	.dis 50 %					
	.dis 15 %					
	.dis 25 %					
	.dis 20 %					
	.dis 20 %					
	L a w l i s t July 1. '01.					
Globe,	.dis 250 250 250 250					
A. C.						
Ch'mpl'n						
Forged	.dis 250 250 250 250					
H o r s e S h o e s —Burden						
R. I. Horse Shoe Co., Perkins'						
Medium and Heavy.						
Mule Shoes.						
Dunning's Finished Steel.						
I c e A w l s. C h i c a g o, I l.						
American Ice Chisel.						
National						
Novelty Ice Breakers.						
White's Sliding Head Picks.						
Dunlap's King Picks.						
Wood Head Picks, Sargent's.						
Iron Head						
Ice Mallets Pick in Head.						
"	Pick in Handle					
Ice Axes, Small, Cast or Malleable						
Kitchen Ice Tonaz.						
Combination Ice Tools.						
K e t t l e s.						
Brass, 7 to 13 inches inc'd us						
Brass, larger than 13 inches.						
Enamelled.						
K n i v e s.						
Ames' Butcher Knives						
" Shoe						
" Bread						
Moran's Shoe and Bread Knives						
Hay and Straw — Wadsworth's						
Fable and Rocket.						
K n o b s.						
Carriage (Jap'd) \$2c. $\frac{1}{2}$ gross.						
Base—Common						
Hemacite Door Knobs.						
Door, Mineral.						
" Por Jap'd.						
" Plated						
" Por.						
	Same d.					
Furniture, Plain						
Wood Scrubs.						
Picture (T. & S. Mfg. Co.)						
" Sargent's.						
Hemacite Picture.						
Shutter, Porcelain						
L adies.—						
M elting. —Sargent's.						
" Reading						
" Monroe's Patent.						
P. S. & W.						
L a n t e r n s.						
Tubular						
No. c. \$1						
With Cap						
No. 1, per						
N a l l C i t y.						

alee's "Victor"	dis 20c
efiance Adjustable	dis 20c
alin Mg. Co.	dis 35 %
lane Irons, Butcher's	dis 40 to 50
Buck Brs.	\$1.00 to \$1
" Ambur Tool Co.'s	\$1.00 to \$1
The Globe Mfg. Co. " Baldwin	dis 20 %
Iron "	dis 20 %
Ohio Tool Co.	dis 20 %
Sandusky Tool Co.	dis 20 %
Pliers and Nippers.	
nton's Patent.	dis 25c
al's Pat. Compound Lever Cutting Nippers No. 1	dis 25c
d n. #20; No. 4, 7 in., \$1.00 per doz.	dis 25c
umason & Beckley Mfg. Co.	dis 30c
as Pliers.	dis 40 to 50
ireka Pliers and Nippers.	dis 25c
essel's Parallel.	dis 25c
S. & W. Cast Steel.	dis 35 %
Tinners' Cutting Nippers.	dis 15 %
Plumb and Levels.	
aston's.	dis 40 %
aney R. & L Co.'s Pat. Adjustable	dis 60c
" " Non-Adjustable.	dis 25c
apin's Patent Adjustable	dis 60c
Non-Adjustable.	dis 25c
andard Rule Co.'s New Adjustable.	dis 60c
" " Non-Adjustable.	dis 25c
nson's Patent Adjustable.	dis 60c
o's Levels.	dis 40 to 50
ivis' Inclinometers.	dis 20 %
Pest Hole and Tree Augers.	
mson Pest Hole Digger.	per dos \$37.50, dis 20 %
etcher Pest Hole Augers.	per dos \$60.00, dis 20 %
ughan's Pest Hole—	
in. \$2.00; 7 1/2 and 9 in. \$2.50 per doz.	dis 20c
reks Diggers 7/8 in. \$40.00.	dis 25c
ed's each \$2.50.	net
Pruning Hooks and Shears.	
aston's Combined Pruning Hook and Saw	
Pruning Hook.	per dos \$19.00, dis 20 %
S. Lee & Co.'s Pruner.	12.50, dis 20 %
uning Shears.	per dos \$5.50c
Wheels.	
t House and Tackie.	dis 60c
'd Screw.	dis 60c
ss Screw.	dis 60c
'd Side.	dis 60c
Clothes Line.	dis 60c
Y Fork.	dis 60c
" " " Anti-Friction."	57. per doz. 40c; 5c
" " " F" Common and Pat. Bushed.	dis 20 %
arbox Fat. Iron.	dis 20 %
ade Rack.	dis 60c
unches.	dis 60c
it or Drive.	W dos \$2.00: 2.25: 2.40, dis 50 %

Rail Sliding Door Wrought Brass	per ft. \$1.20	dis 30%
" " Iron, Painted	per ft. \$1.20	dis 40%
Barn Door, " Inch	3.00	5.00
Per 100 feet, " for N. E. Hangers	\$2.00	dis 30%
" Small, Med. Large	3.70	5.00
Per 100 feet, " Patent Razor	\$2.10	dis 30-35%
J. R. Terry's Razor Co.		dis 15%
Masher Mirras.		dis 60%
Genuine Emerson		dis 60%
Badger's Emerson		dis 60%
Not Emerson		dis 60%
Evans'		dis 60%
Imitation Emerson	per doz \$2.00	dis 20%
Hunt's		dis 60%
Stevens		dis 60%
Saunders'		dis 60%
Torrey's		dis 20%
Stevens		dis 60%
ron and Tinned		dis 60%
In brass or in Metal		dis 60%
Copper Rivets and Bars		dis 60%
Nos. 8, 9, 10, 11, 12, 13, 14, 15, 16	500 lbs	500 lbs
Burn's		dis 45%
Rivet Sets.		dis 20%
Holes.		dis 20%
Stair Braces		dis 20%
Stair Brackets Walnut		dis 40%
Stair Aman Can Patent		dis 20%
Hammers.		dis 20%
Earn Door Sargent's List		dis 50-60%
Acme (Anti-Friction)		dis 50%
Hoops. —Mats' Net List. May 21, 1881, dis on 5000 lbs		
Manus. 100 ft. inc and larger, per ft. 15%		
" " 100 ft. inc and larger, per ft. 15%		
" " 100 ft. inc and 15 ft. 15%		
" " Tar'd Hoop		dis 15%
" " Lathe Yarn		dis 15%
Hay Hoop.		dis 15%
Steel	1/4 inch and larger	dis 10-15%
" "	1/4 inch and 15 ft. 10%	
" " Hay Rope		dis 10-15%
" " Hay Rope	Boxwood, Ivory	dis 10-15%
Chain Standard		dis 70-80%
Stanley		dis 60-70%
Sad Irons.		dis 10-15%
From 4 to 10 lbs.		dis 10-15%
Self Heating Tailors'		dis 10-15%
Gleason's Shield and Toilet		dis 10-15%
Mrs. Pott's Irons, Double Pointed		dis 10-15%
Mrs. Pott's Irons, Square Pointed		dis 10-15%
Star Star Irons		dis 10-15%
Combined Fluter and Sad Iron, per doz \$1.00	dis 10-15%	
Hand Paper.		
Bader & Adamson's Flint, co to 14¢, \$0.75 per ream		
" " 25¢ & 33¢		
" " Assorted 42¢		
" " Star" " 75¢ per ream		
" " Emery" " 75¢ per ream		
Bartles Flint, same list as B & A.		dis 20%
" " Harrison's, 75¢ per ream.		
New England, same list as B. & A. Flint.		dis 20%
Gave's		dis 20%
Lead Cord.		dis 10-15%
Common		dis 10-15%
Patent		dis 10-15%
Silver Lake Hemp		dis 10-15%
White Cotton		dis 10-15%
Drab Cotton		dis 10-15%
Raw Hide		dis 10-15%
Steel Ribbon		dis 10-15%
Pad Locks.		dis 10-15%
Clark's No. 1, \$1.00; No. 2, \$1.00 per gross	dis 10-15%	
Ferguson's		dis 10-15%
Walker's		dis 10-15%
Hammond's Window		dis 10-15%
North Wind Springs, No. 1, \$1.00	dis 10-15%	
The Perfect, Clark's	For Knob Jap'd. \$1.00 net	dis 10-15%
" " Nickel-Plated	75¢ per gross	dis 10-15%
Universal		dis 10-15%
Sash Weights. —Solid Eyes, in 100 lb lots and over		dis 10-15%
Massage Mufflers or Filters.		dis 10-15%
Miles	per doz \$1.00	dis 10-15%
Perfume Cutters	per doz No. 15, \$1.00	dis 10-15%
Raw Cutters	each \$1.00	dis 10-15%
Enterprise Mfg. Co.	dis 10-15%	
Silvers		dis 10-15%
Maws.		
Flaston's Circular		dis 40%
" " Mill		dis 40%
" " Cross Cut		dis 40%
" " Hand Panel, Rip, &c.		dis 40%
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Common Lever	per doz \$1.00	dis 40%
Leach's	per doz \$1.00	dis 40%
Wash's	per doz \$1.00	dis 40%
Hannover's Hotchkiss	per doz \$1.00	dis 40%
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" " Framed Wood		dis 40%
Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16	10.00	7.50
Per doz \$1.00	10.00	7.50
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Red Rods	per doz \$1.00	dis 10%
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Boyd's Patent	per doz \$1.00	dis 20-25%
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Defence Box and Ship		dis 20-25%
Foot		dis 20-25%
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" " Providence Tool Co.	dis 20-25%	
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Dixson's	dis 20-30%	
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No. 1, \$1.00	dis 20-30%	
" " Nos. 4 and 6	dis 20-30%	
Clark's Patent	dis 20-30%	
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Box Scraper		dis 20-25%
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Foot		dis 20-25%
Ship (common)	per doz \$1.00	dis 20-25%
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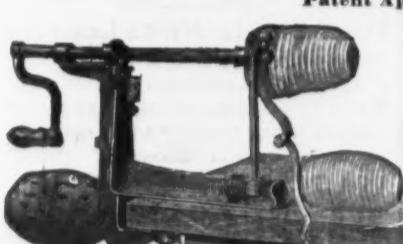
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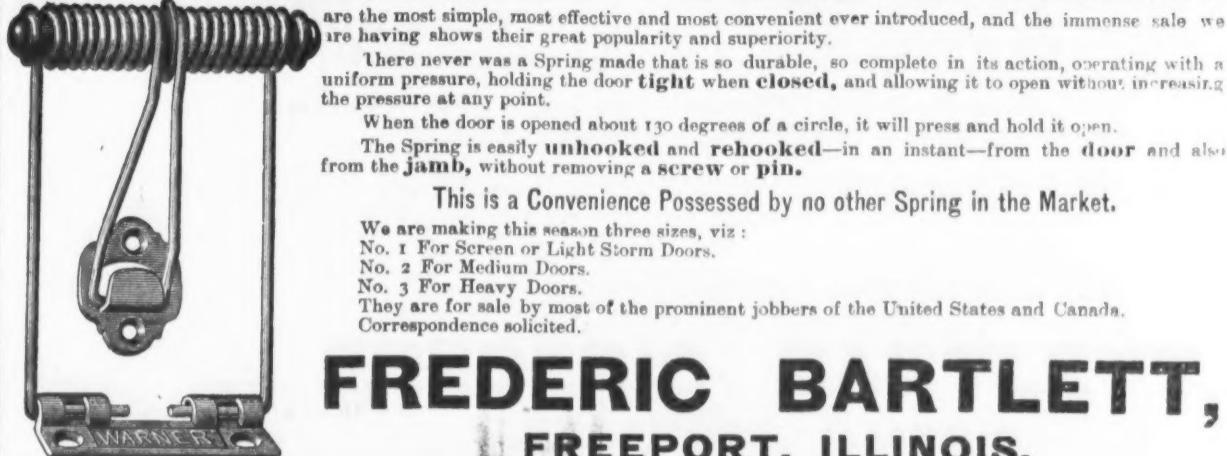
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SPECIAL ISSUES.

In the spring and autumn of each year there is published a Special Issue, the circulation of which is not less than Twelve Thousand (12,000) copies.

THE IRONMONGERS' DIARY AND TEXT BOOK.

This is an annual, presented free to every Subscriber to the IRONMONGER AND METAL TRADES' ADVERTISER. It contains a large number of ruled skeleton pages for diary and other entries, and in addition much useful reference information, varied from year to year. It is handsomely bound in cloth, gilt; and as copies are used in thousands of establishments for a whole year, it is obviously a medium of exceptional value for advertisements. Sold to non-subscribers at 75 cents.

THE FOREIGN SUPPLEMENT,

With which is incorporated The Universal Engineer,

Is published every four weeks in connection with the extensive and world-wide circulation of the Ironmonger itself. The dates of its publication for the next twelve months will be as follows:

SEPTEMBER 17, OCTOBER 8, NOVEMBER 6, DECEMBER 3 and 31, 1881, JANUARY 26, FEBRUARY 25, MARCH 25, APRIL 22, MAY 27, JUNE 17, JULY 8 and AUGUST 5, 1882.

This Supplement is published in

FOUR LEADING COMMERCIAL LANGUAGES

of the world, including English, and is sent to all the countries where they are spoken, thus placing the contents of the Ironmonger not only within reach but in the native language of eighty millions of German, forty-two millions of French, twenty-eight millions of Italian, and fifty-one millions of Spanish speaking people; or, in all, over two hundred millions of inhabitants in the principal nations where the best purchasers of manufactured goods are to be found.

Advertisements are inserted in any language at the following

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	13 INSERTIONS, each net.	7 INSERTIONS, each net.	3 INSERTIONS, each net.		13 INSERTIONS, each net.	7 INSERTIONS, each net.	1 INSERTION, net.
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One-third page.	12.50	14.10	15.65		One-sixteenth page.	3.20	3.40

Advertisers will do well to use Illustrations freely. Where economy of space is an object, a left page illustrated and described in one language can be suitably described in four or more languages on the opposite or right page without illustrating.

THE WHOLE FOREIGN HARDWARE TRADE,

so far as our experience of twenty years is concerned, will be covered by THE FOREIGN SUPPLEMENT at least twice a year. Thus a Price List or Advertisement inserted in the Ironmonger and Foreign Supplement is a strikingly powerful and most efficient way of publicity not to be compared with any other ordinary channels of communication.

B. KREISCHER & SONS,
FIRE BRICK.
BEST AND CHEAPEST.
Established 1845.
Office, foot of Houston Street, East River,
NEW YORK.

Newton & Co.,
ALBANY, N. Y., Manufacturers of

FIRE BRICK
Stove Linings,

Range and Heater Linings:

Cylinder Brick, &c., &c.
For Glass and Steel Works.

SILICA,
Bricks and Cement,
English Fire Bricks.

RIMINGTON BROS. & CO.,
Newcastle-on-Tyne.
Agent on this side.

S. A. RIMINGTON,
264 & 266 Water Street,
NEW YORK.

M. D. Valentine & Bro
Manufacturers of

FIRE BRICK
And Furnace Blocks
DRAIN PIPE & LAND TILE.

Woodbridge, - - - N. J.

BORGNER & O'BRIEN,
Manufacturers

FIRE BRICK
AND

Edge Pressed Furnace Blocks,
CLAY RETORTS, TILES, &c.,
Twenty-third Street,
Above Race, PHILADELPHIA.
Twenty years' practical Experience.

WATSON FIRE BRICK CO.,
ESTABLISHED 1856.
Successors to JOHN R. WATSON, Perth Amboy, New Jersey.

Manufacturers of

FIRE BRICK,
OR ROLLING MILLS, BLAST FURNACES, FOUNDRIES, GAS WORKS, LINE KILNS, TANNERY, BOILER AND GRATE SETTING, GLASS WORKS, &c.
Fire Clays, Fire Sand, and Knolls for Sale.

HENRY MAURER,
Proprietor of the
Excelsior Fire Brick & Clay
Retort Works,
Manufacturer of FIRE BRICK, HOLLOW
BRICK AND CLAY RETORTS,
WORKS: Perth Amboy, NEW JERSEY.
Offices & Depots: 418 to 422 East 23d St., N. Y.

TROY FIRE BRICK WORKS,
Troy, N. Y.

JAMES OSTRANDER & SON,
ESTABLISHED 1848,
Manufacturers of

FIRE BRICK,
Tuyeres, Tiles, Blast Furnace Blocks, &c. Miners and
Dealers in Woodbridge Fire Clay and Sand, and Staten Island Kaolin.

Established 1844.

GARDNER BROTHERS,
Manufacturers of

STANDARD SAVAGE FIRE BRICK,
TILE & FURNACE BLOCKS,

OF ALL SHAPES AND SIZES.

Clay Gas Retorts and Retort Settings, and
Miners and Shippers of Fire Clay.

OFFICE: 115 Smithfield St., Pittsburgh, Pa.

WORKS: Mt. Savage Junction, Md., and Lockport, Pa.

HALL & SONS,

FIRE BRICK,

Buffalo, N. Y.

CHAS. D. COLSON,

FIRE BRICK,

Foundry Facings, Sand, Tools and Supplies.

CHICAGO, ILL.

UNION MINING COMPANY.
Mount Savage Fire Brick.

EDWARD J. ETTING, Agent,
No. 230 South Third St., Philadelphia, Pa.

MILLER'S BRICK PRESSES
(Established 1844).

FIRE and RED BRICK.
And Brickmakers' Tools in General.

J. MILLER & SON,

500 South 5th St., Philadelphia.

HENRY DISSTON & SONS,

KEYSTONE SAW, TOOL, STEEL & FILE WORKS,

Front and Laurel Streets, PHILADELPHIA.

DISSTON'S SAMSON TREE PLANTER AND POST HOLE DIGGER.

FIG. 1.



Patented May 29, 1870.

Price, - - - \$37.50 per dozen.

No Farmer, Nurseryman, Railroad
or Telegraph Company
SHOULD BE WITHOUT ONE.

NO BACK-ACHE.

NO KNEE-WORK.

NO CLOGGING.

This tool has been thoroughly tested, and has given the greatest satisfaction to all who have tried it. The principle on which it works makes it self-cleaning and prevents adhesion in sticky soil; therefore it always works free and easy. It is far superior to all plungers, augers and boring machines, as it works well in stony, sandy, or clay soils; quicksand under water is as easily removed as though no water existed.

DIRECTIONS.

Plunge the Digger into the ground, as shown in cut, Fig. 1, and when the soil is loosened pull out the lever with one hand, as shown in cut, Fig. 2, which will press the dirt between the blades; then draw the Digger from the hole, keeping hold of the lever with one hand and the handle with the other. When the Digger is clear of the hole, you can deposit the load anywhere within reach by simply pressing down the lever, which will open the blades and the dirt will fall from between them. The Digger is then ready for another plunge. The steel blades are nine inches long, and the whole tool five feet long. For sale at Hardware and Agricultural Stores.

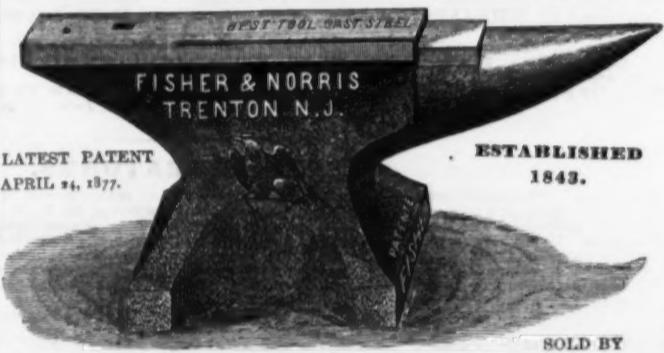
HENRY DISSTON & SONS.

THE "EAGLE" ANVIL. WARRANTED!!

Better than the Best English Anvil.

Face in one piece, of BEST TOOL CAST STEEL. PERFECTLY WELDED, perfectly true; of hardest temper and never to come off or "settle." It does not bounce the hammer back, and therefore can do more work with lighter hammer. Horn of tough untempered steel, never to break or bend. Only Anvil made in United States fully warranted as above. None genuine without our trade-mark.

N. B.—That the "Eagle" Anvil is the *only* one made at Trenton, New Jersey, and it must not be mistaken for an Anvil in the market called Trenton, but which is really of foreign manufacture, and an imported imitation of the English Anvil.



SOLD BY

New York—RUSSELL & ERWIN MANUFACTURING COMPANY, DURRIE & McCARTY, TENNIS & WILSON.
Philadelphia—JAMES C. HAND & CO., BOSTON—GEORGE H. GRAY & DANFORTH.
Baltimore—W. H. COLE & SONS, JOHN R. KELSO, JR.
Louisville—W. B. BELKNAP & CO.
Cincinnati—POST & CO.
Cleveland—THE LAKE ERIE IRON CO.

John T. Lewis & Bros.
No. 231 South Front St.,
PHILADELPHIA.

JOHN T. LEWIS & BROS.
PURE WHITE LEAD.
MANUFACTURERS OF
Pure White Lead, Red Lead, Litharge,
Orange Mineral, Linseed Oil,
AND PAINTERS' COLORS.

Brooklyn White Lead Co.

JOHN T. LEWIS & BROS.
PURE WHITE LEAD.
MANUFACTURERS OF
White Lead, Red Lead & Litharge.
No. 182 Front Street,
NEW YORK.

JOHN JEWETT & SONS,
Manufacturers of the well-known brand of
WHITE LEAD.

JOHN JEWETT & SONS,
PERFECTLY PURE
WHITE LEAD.
TRADE MARK
ALSO MANUFACTURERS OF
LINSEED OIL.
182 Front Street, NEW YORK.

ATLANTIC WHITE LEAD &
LINSEED OIL CO.,
Manufacturers of
White Lead (Atlantic), Red Lead, Litharge,
Glass Makers' Litharge and
Orange Mineral;
LINSEED OIL,
Raw, Refined and Boiled.
ROBERT COLGATE & CO.,
287 Pearl St., NEW YORK.

The Atlantic White Lead and
Linseed Oil Co.,
Manufacturers of
White Lead (Atlantic), Red Lead, Litharge,
Glass Makers' Litharge and
Orange Mineral;

LINSEED OIL,
Raw, Refined and Boiled.
ROBERT COLGATE & CO.,
287 Pearl St., NEW YORK.

AIR COMPRESSORS.
ALLEN'S
HIGH SPEED AIR COMPRESSORS,
With Positive Moving Valves,
Allen Engines, Stationary and Marine Boilers,
Hoisting Machinery, Air Pumps, Evaporators
and Condensers for Animal Matters.

AIR COMPRESSORS A SPECIALTY.
JOHN McLAREN,
River Street, - - - HOBOKEN, N. J.

WILLIAM H. ADNEY,
Chairman.
PETER D. WANNER,
Sec. and Treas.
Mellert Foundry & Machine Co.,
Limited,
(Works Established at Reading, Pa., in 1848.)
Manufacturers of

Specials, Flange Pipe, Retorts, Valves and Hydrants,
Loud Pots, &c. The Improved Canadian Turbine
Water Wheel, Machinery and Castings
of Furnaces, Rolling Mills, Grist and Saw Mills, Milling
Pump, Holste, &c., Columns, Bridges, Iron
Balloons, &c.

ARNOLD MELLERT, Secy., Reading, Pa.

JOHN MELLERT, Secy., Reading, Pa.

ROCKING BLOCK GRATE,

Williams' Patent,

J. Q. MAYNARD,
General Agent.

97 Liberty Street, NEW YORK.

Fire level. Accumulation of cinders impossible.
No cleaning out of fires during the day. Parts
easily and cheaply replaced. Seventy per cent.
of air space. Thirty days' trial.
Send for circular.

GREEN'S PURE SILICA FIRE BRICK,
MADE BY

LACLEDE FIRE BRICK MANUFACTURING CO.,

SPECIALLY ADAPTED FOR

Pernot and Siemens Open Hearth
Steel Furnaces and for Glass Furnaces.

Office, 901 Pine St., St. Louis, Mo.

REMOVAL.

Please notice that we have removed from No. 295 THIRD AVENUE to
No. 37 Warren Street, near Church St.,
Where we hope to be favored with a continuance of your generous patronage.

J. M. FARRINGTON & CO.,
Successors to DAY, FARRINGTON & CO., Manufacturers of

LOCKS, KNOBS, GONGS, BLANK KEYS,
Wrought Store Door and Flush Bolts, Silver Plated, Ornamental Bronze and other Hardware.

DAVID HYMES & CO.,
92 Church Street, New York,

JOB LOTS OF HARDWARE & CUTLERY.

BOLT CUTTERS

AND NUT TAPPING MACHINES,

(Schlenker's Patent.)

Send for Illustrated Catalogue.

PHILADELPHIA.

Corrected Weekly by Lloyd, Suppice & Walton.)
terms, 30 days. For 60 or 90 days, interest added at 10
per cent. per annum.

Anvils.
Peter Wrights, W. D. 10¢
U. S. Pattern 10¢
Eagle (American) 10¢ lb.—dis 20¢

Apple Pavers.
Penn Apple Paver 65¢
Rotary Peach Pavers 13¢
Lots of 10 to 25 dozen special prices.

Axes.
Hunt's Kentucky and Yankee, per doz. \$9.50 @ 10.00
Mann's Red Warrior 6.00 @ 6.00
Richland Clef 8.50 @ 9.00
Bevelled Axle add 100
Double Bit Axes 19.00

Auger and Auger Bits. New List January 1.
Bates' Nut Augers dis 40¢
Cook's Augers dis 40¢ to 50¢
Watson's Ship Augers dis 15¢ to 25¢
Dowin's Pierce Augers dis 15¢ to 25¢
Gravewold Auger Bits dis 40¢
Cook's Joints dis 10¢ to 15¢
Jonans' dis 10¢ to 15¢
Dowin's Pat. Hol. Augers, list \$48 @ doz. dis 24¢ to 30¢
Steens' Pat. Hol. Augers, list \$48 @ doz. dis 24¢ to 30¢
Balances,
Light and Common dis 14¢ to 15¢

Bells.
Bevin Bros. Mfg. Co. Light Hand Bells dis 6¢ to 12¢
Sew. Pattern Hand Bells low list dis 10¢ to 15¢
Connell's Door Bells dis 15¢ to 20¢
Gt. Western & Kentucky Cow, new list dis 50¢

Bolt and Rivet Clips.
Chandler's, 10¢ to 15¢ each, \$1.00
" No. 2, " 12¢ " 9.00 " 15¢
" No. 3, " 15¢ " 12.00 "

Boring Machines.
Upright, without Augers List \$50
Auger, without Augers \$6.75 dis 40¢

Bolts—Eastern Carriage Bolts. List \$5
Philadelphia new list dis 70¢ to 10¢
Stanley, Wrought Shutter dis 10¢ to 15¢

Braces.—Barber's.
Buckles dis 40¢ to 50¢
Sprofford dis 40¢ to 50¢
American Rail dis 40¢ to 50¢

Butt Joint. Cast Fast Joint, Narrow Broad dis 40¢ to 50¢
Cast Loose Joint, Narrow Broad dis 40¢ to 50¢
" Acorn, Loose Pin dis 40¢ to 50¢
" Mayer's Loose Joint dis 40¢ to 50¢
Wrought Joint, Narrow dis 40¢ to 50¢
" Narrow, Fast dis 40¢ to 50¢
Loose Joint dis 40¢ to 50¢

Bolt Buttons. Plain 1¢
Clark 1¢
Shepard 1¢
Lull & Porter 1¢
Huffer's 1¢

Chests. German Hatter and Coll. new list \$100
Galvanized Pump dis 10¢ net

Beds—Proof Coil Chain—English. 7¢ gold

Chisels—Socket Framing. 7¢ gold
Sockets Firm dis 6¢ to 12¢
Butchers' \$1.00 to 2¢ gold

Charters. Bed (new list July 1, 1880). \$1.00
" 40¢ to 50¢

Chasten. Box and Side, new list Jan. 1. 1880.

Enterprise. new list net

Cutteries. Walder's Pocket new list net
Lander's, Fraz. & Merk. J. Russell & Co., Lamson & Goodnow Mfg. Co. and Meriden Cutlery Co., Manufacturers' prices net.

Drawing Knives. Hart Mfg. Co.'s dis 6¢ to 10¢
Adjustable Handle dis 10¢

Fry Pans. Tins \$1.00 4.00 4.50 5.00 5.50 6.00 6.50 7.00 9.00 11.00

No. 1 2 3 4 5 6 7 8 9 10 11
Burnished dis 6¢ to 10¢

2 doz. \$3.75 4.75 5.25 6.00 7.00 8.00 9.00

No. 1 2 3 4 5 6 7 8 9 10 11

Fillets. Nicholson dis 30¢ to 50¢
Dissenter dis 40¢
Butcher 8¢ to 12¢
Spoon 12¢ to 15¢
E. M. Boynton, new list.

Fighting Machines. Egrie 4½ in. roll. each, \$2.15 2½ dis 20¢
Crown 4½ in. roll. " 2.85 " 20¢
" 5 in. roll. " 3.00 " 20¢
" 8 in. roll. " 5.50 "

Geneva Fluter dis 25¢
Favorite com. Fluter & Sad Iron \$1.00 to 1.25 net

Hammers. Vortex & Plumb's, new list. dis 30¢

Hatches. Vortex & Plumb, new list. dis 30¢

Hunt. dis 20¢ to 25¢

Hinges. Strap and T. Hinges Nails. Nos. 4 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

Australis dis 50¢ to 60¢
Poled & P't'd and Blued and Pointed. 31 28 25 22 20 18 15 12 10 8 6 4 2 1

Globe dis 20¢ to 25¢

Clinton 23 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

" Polished & Pointed. 23 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

Porter, all sizes. 23 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

Dis. on Amboine and Clinton, 30¢ to 1. Globe, 10¢

Latches and Knobs. Bradford dis 15¢ to 25¢

Gavford Cabinet dis 25¢ to 50¢ cash

American Padlocks dis 40¢ to 45¢ cash

Scammon's Patent. 25 23 21 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

2 doz. \$2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 6.00 6.50 7.00 7.50 8.00 8.50 9.00 9.50 10.00

No. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

Globes, 35 cents extra per doz. net.

Lawn Mowers. Pennsylvania new list

Pennsylvania 1.00 per pair net.

Hatches. Vortex & Plumb, new list. dis 30¢

Hunt. dis 20¢ to 25¢

Hinges. Strap and T. Hinges Nails. Nos. 4 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

Australis dis 50¢ to 60¢

Poled & P't'd and Blued and Pointed. 31 28 25 22 20 18 15 12 10 8 6 4 2 1

Globe dis 20¢ to 25¢

Clinton 23 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

" Polished & Pointed. 23 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

Porter, all sizes. 23 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

Dis. on Amboine and Clinton, 30¢ to 1. Globe, 10¢

Latches and Knobs. Bradford dis 15¢ to 25¢

Gavford Cabinet dis 25¢ to 50¢ cash

American Padlocks dis 40¢ to 45¢ cash

Scammon's Patent. 25 23 21 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

2 doz. \$2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 6.00 6.50 7.00 7.50 8.00 8.50 9.00 9.50 10.00

No. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

Globes, 35 cents extra per doz. net.

Lawn Mowers. Pennsylvania new list

Pennsylvania 1.00 per pair net.

Hatches. Vortex & Plumb, new list. dis 30¢

Hunt. dis 20¢ to 25¢

Hinges. Strap and T. Hinges Nails. Nos. 4 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

Australis dis 50¢ to 60¢

Poled & P't'd and Blued and Pointed. 31 28 25 22 20 18 15 12 10 8 6 4 2 1

Globe dis 20¢ to 25¢

Clinton 23 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

" Polished & Pointed. 23 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

Porter, all sizes. 23 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

Dis. on Amboine and Clinton, 30¢ to 1. Globe, 10¢

Latches and Knobs. Bradford dis 15¢ to 25¢

Gavford Cabinet dis 25¢ to 50¢ cash

American Padlocks dis 40¢ to 45¢ cash

Scammon's Patent. 25 23 21 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

2 doz. \$2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 6.00 6.50 7.00 7.50 8.00 8.50 9.00 9.50 10.00

No. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

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Australis dis 50¢ to 60¢

Poled & P't'd and Blued and Pointed. 31 28 25 22 20 18 15 12 10 8 6 4 2 1

Globe dis 20¢ to 25¢

Clinton 23 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

" Polished & Pointed. 23 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

Porter, all sizes. 23 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

Dis. on Amboine and Clinton, 30¢ to 1. Globe, 10¢

Latches and Knobs. Bradford dis 15¢ to 25¢

Gavford Cabinet dis 25¢ to 50¢ cash

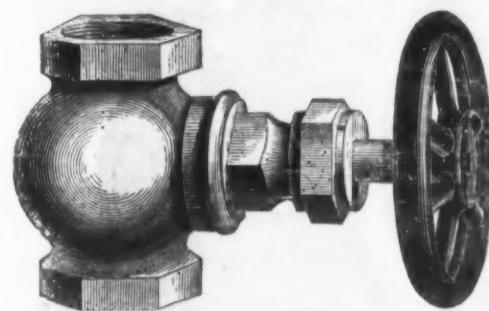
American Padlocks dis 40¢ to 45¢ cash

Scammon's Patent. 25 23 21 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

2 doz. \$2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 6.00 6.50 7.00 7.50 8.00 8.50 9.00 9.50 10.00

No. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 1

McNab & Harlin Mfg. Co.,
Manufacturers of
BRASS COCKS AND VALVES,
For STEAM,
WATER
and GAS.
WROUGHT IRON
PIPE AND FITTINGS,
PLUMBERS' MATERIALS



Factory, Paterson, N. J.

56 John Street, N. Y.



W. P. TOWNSEND & CO.,
PITTSBURGH, PA.,
Manufacturers of every description of First Quality
RIVETS.



WM. H. HASKELL & CO.,
Pawtucket, R. I.
Manufacturers of
COACH SCREWS,

(With Gimlet Points),
ALL KINDS OF
Machine and Plow Bolts,
AND
TAP BOLTS.

HENRY B. NEWHALL,
105 Chambers St.,
New York Agent.

STANDARD NUT CO.,
Pittsburgh, Pa.,
Manufacturers of

HOT PRESSED
Square & Hexagon Nuts,
R. R. FISH BARS,
BOLTS,
SPIKES,
RIVETS, &c.

Philadelphia "STAR" Bolt Works.
NORWAY IRON
Carriage & Tire Bolts. Star Axle Clips, &c.
TOWNSEND, WILSON & HUBBARD, 2301 Cherry Street, Philadelphia, Pa.

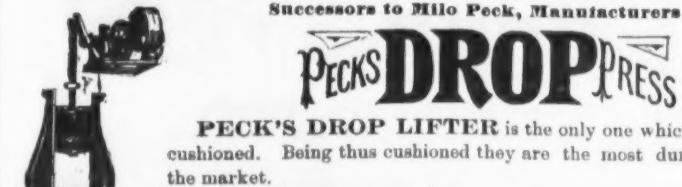
MACHINE, PATCH AND STAY BOLTS.
HOOPES & TOWNSEND,
KEYSTONE
BOILER RIVETS
• PHILADELPHIA:
WOOD SCREWS, TANK RIVETS, FLAT LINK CHAIN.



Cold Punched
NUTS

BEECHER & PECK,

Successors to Milo Peck, Manufacturers of



PECK'S DROP LIFTER is the only one which has its parts cushioned. Being thus cushioned they are the most durable lifter in the market.

Can be attached to any drop now in use.

Our New Illustrated Catalogue is just out.

Cor. Lloyd and River Sts.,

New Haven, Conn.

NORWAY IRON CARRIAGE & TIRE BOLTS.
Axle Clips, &c.



COLEMAN EAGLE BOLT WORKS,
WELSH & LEA, Philadelphia, Pa.

F. M. HASLETT & CO.,
Manufacturers of



Carriage, Machine and Skein Bolts, Lag Screws, &c.
ALLEGHENY, PA.

W. K. ROSS, J. A. FULLER, W. K. FULLER, Sole Agents,
97 Chambers Street, New York.

Columbus Bolt Works,
COLUMBUS, OHIO.

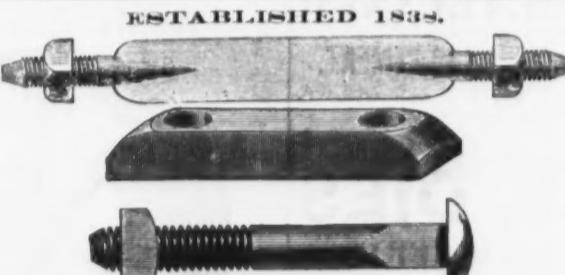


Threshing Machine Teeth

For all the Leading Machines.
GENUINE NORWAY IRON CARRIAGE BOLTS.

Illustrated Catalogues and Prices mailed on application.

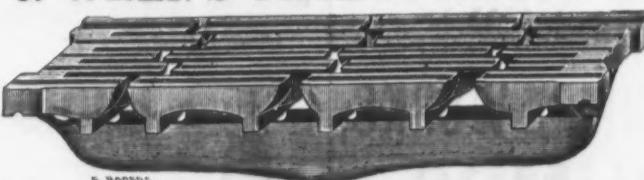
CARRIAGE HARDWARE.



Fancy Head Norway Carriage Bolts a Specialty.

C. COWLES & CO., New Haven, Conn.

W. C. WREN'S PATENT GRATE BAR.



DAVID S. CRESWELL, Manufacturer,
816 Race Street,
The most durable Grate Bar on the market.

Send for circular and price list.

PHILADELPHIA SCREW CO., Limited,
Twelfth and Buttonwood Streets, PHILADELPHIA.

Manufacturers of
IRON & BRASS WOOD SCREWS.



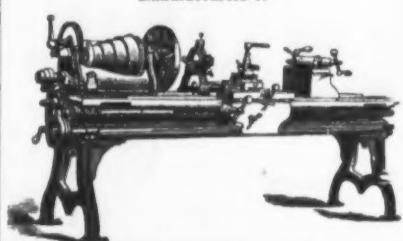
Quality, finish and tests as to strength guaranteed equal to any

in the market.

With improved facilities and largely increased capacity for production, we can fill orders promptly, and invite inquiries for discounts. A full line in stock.

P. BLAISDELL & CO.,

Manufacturers of



MACHINISTS' TOOLS,

Blaisdell's Patent Upright Drills,

With Quick Return Motion.

Engine Lathes, Planers, Boring Mills,

Gear Cutters and Hand Lathes.

WORCESTER, MASS., U. S. A.

THE LOWE PATENT
FEED WATER HEATER & PURIFIER.



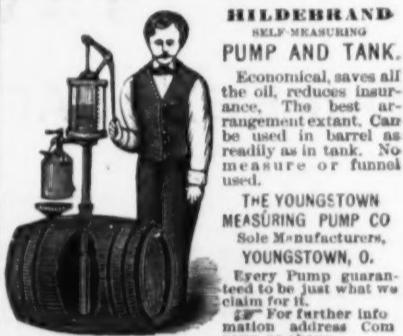
Heating and Purifying Water for Steam Boilers.
Patented July 12, 1877.
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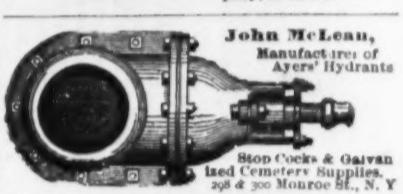
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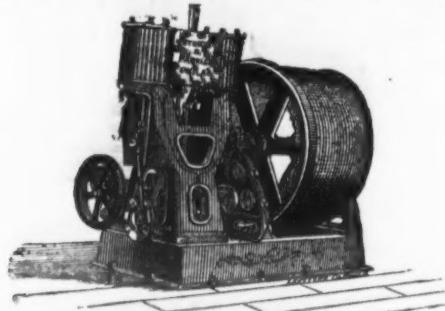
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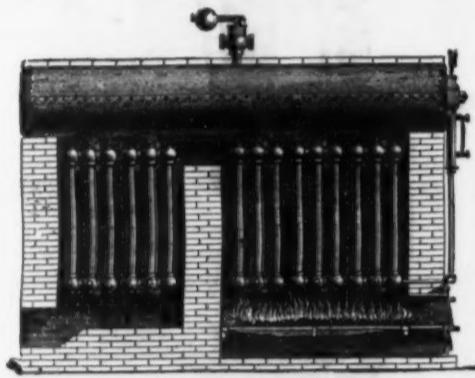
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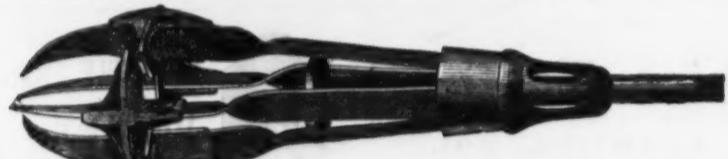
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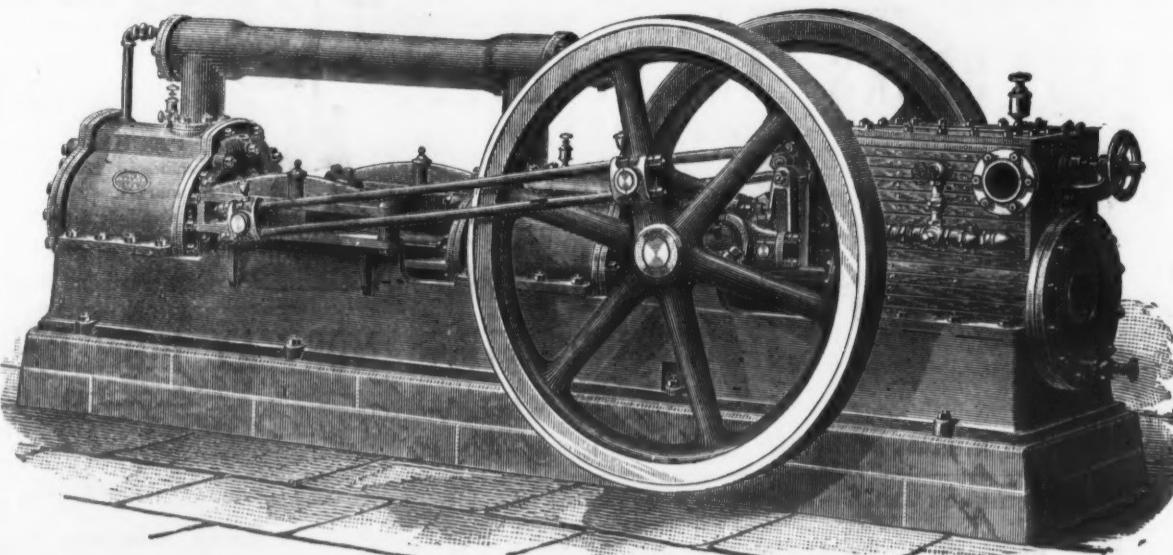
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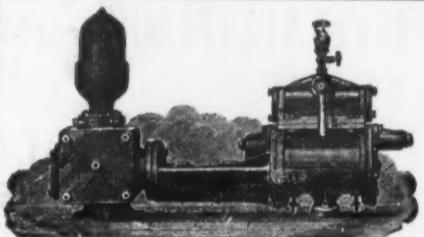
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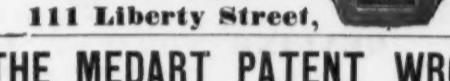
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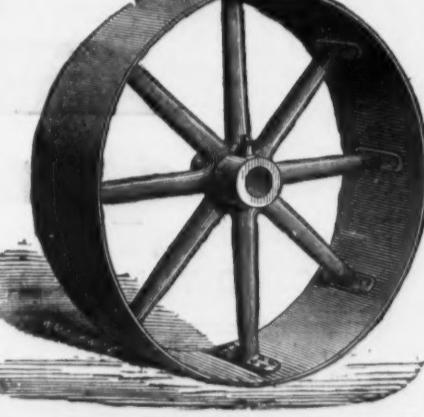
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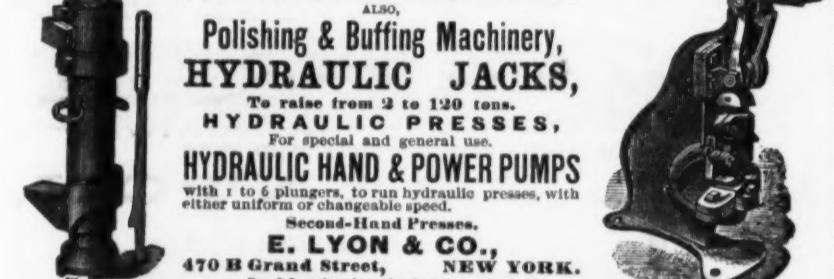
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ii. Atwood Nut on bolt without bearing on base—sides open. jj. Atwood Nut turned to bearing c, partially closing the slots and grasping the bolt.

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